

FLIGHT

The
AIRCRAFT ENGINEER
AND AIRSHIPS

OFFICIAL ORGAN OF THE ROYAL AERO CLUB

No. 1297
Vol. XXV
No. 44

SIXPENCE
EVERY THURSDAY



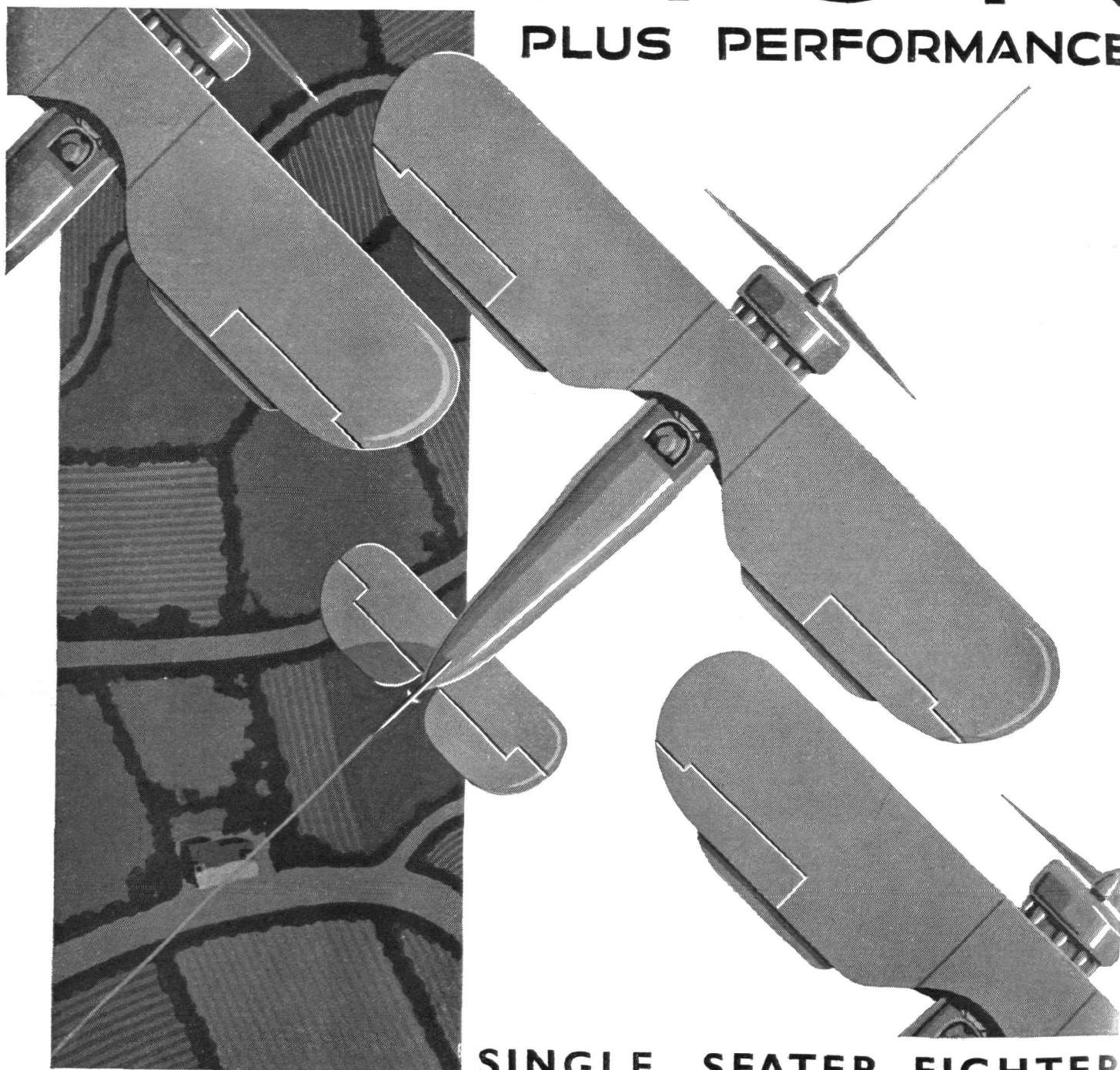
Hawker Aircraft

ROLLS-ROYCE "KESTREL" ENGINE

LEAD THE
WORLD

DESIGN

PLUS PERFORMANCE



SINGLE SEATER FIGHTER

—PLUS RELIABILITY
EQUALS PERFECTION

THE "BRISTOL" BULLDOG
IS FEATURED IN THE AIR
ARMS OF NO LESS THAN
NINE DIFFERENT COUNTRIES

"Bristol"
BULLDOG

THE BRISTOL AEROPLANE COMPANY, LIMITED
FILTON . . . BRISTOL . . . ENGLAND

Kindly mention "Flight" when corresponding with advertisers.

RUBBER PARTS

of every Description for Aircraft

DURUBBA
Tubing for
Petrol, Oil and Water.

TURNER
Shock Absorber
Rings and Cords

BUFFERS, SPONGERUBBER, ETC., ETC.
The Directors of LUKE, TURNER & CO.,
and of BURLEY LIMITED, are the pioneer
manufacturers of aircraft rubber. Their very
wide experience is gladly at the disposal of
Designers and Builders.

COMPRESSION RUBBERS

TO EVERY SPECIFICATION.

Release notes authorised by A.I.D.
Contractors to the Air Ministry.

BURLEY LIMITED

RUBBER PRODUCTS

192, TOTTENHAM COURT ROAD, LONDON, W. 1

TELEPHONE:
MUSEUM
5042



TELEGRAMS
DURUBBA
WESTCENT.LOND

"FLIGHT" POSTCARDS

ACTUAL PHOTOGRAPHS

Machines of the
R.F.C., R.N.A.S., and R.A.F.

Armstrong Whitworth "Atlas"	Fairey "III F" Seaplane	Martinsyde F.4
Armstrong Whitworth "Siskin"	Fairey "Flycatcher"	Maurice Farman "Longhorn"
Avro "Bison"	Fairey "Fox"	Maurice Farman "Shorthorn"
Avro 504K	Fairey "Gordon"	Nieuport 1½ "Plane"
Avro "Lynx"	Fairey Long Range Monoplane	R.E.8
Avro "Tutor"	F.E.2-B	S.E. V
B.E. 2C	Flying Boat F.3	Spad
B.E. 12	Flying Boat F.5	Short 225
Blackburn "Dart"	Gloster "Gamecock"	Short "Rangoon"
Blackburn "Iris III"	Gloster "Grebe"	Short "R6/28"
Blackburn "Iris V"	Handley Page "Heyford"	Sopwith "Camel"
Blackburn "Kangaroo"	Handley Page "Hinaldi"	Sopwith "Dolphin"
Blackburn "Ripon"	Handley Page "Hyderabad"	Sopwith "Pup"
Boulton & Paul "Sidestrander"	Handley Page 0/400	Sopwith "Salamander"
Bristol "Bulldog"	Hawker "Audax"	Sopwith "Snipe"
Bristol "Fighter"	Hawker "Demon"	Sopwith 1½ Strutter
Bristol "Scout"	Hawker "Fury"	Vickers "Gun Bus"
De Havilland D.H.1	Hawker "Hart"	Vickers "Vernon"
De Havilland D.H.2	Hawker "Horsley"	Vickers "Victoria"
De Havilland D.H.4	Hawker "Torpedo"	Vickers "Vimy"
De Havilland D.H.5	Hawker "Horsley"	Vickers "Virginia"
De Havilland D.H.6	Hawker "Nimrod"	Vickers "Vildebeeste"
De Havilland D.H.9	Hawker "Osprey"	Vickers-Supermarine S.6.B
De Havilland D.H.9a	Hawker "Tomtit"	Vickers-Supermarine "Southampton"
De Havilland "Tiger Moth"	Hawker "Woodcock"	Westland "Wapiti"
Fairey III-D	Henry Farman	
Fairey III-F	Martinsyde F.1	
	Martinsyde F.3	

Single Cards 6d. each, post free.
Six or more Cards 4d. each, post free. } Cash with order.

"FLIGHT" Office,

36, Great Queen Street, Kingsway, London, W.C.2

Telephones: Holborn 3211 & 1884.

AIRCRAFT PARTS

of every description are obtainable from Brown Brothers Ltd. Large and varied stocks enable immediate attention to be given to all orders.

STOCKS INCLUDE:

Steel and Duralumin Bolts, Rivets,
Brass Screws, Cadmium-Coated
Steel Fork Joints, Nuts and
Washers, H.T. Pins, Stainless
Steel Bolts and Nuts, Spec. 4A.1,
5F.1 Aero Fabric, etc.

Brown Brothers

GREAT EASTERN STREET,
LONDON E.C.2.

"FLIGHT" Photographs

(Copyright).

BLACK AND WHITE, GLOSSY, UNMOUNTED:—
6½ x 4½ ... 1/6 8½ x 6½ ... 2/6 10 x 8 ... 3/6
12 x 10 ... 4/6 20 x 16 ... 10/6

DOUBLE THICKNESS, CREAM BASE, SEPIA
TONED, UNMOUNTED:—

10 x 8 ... 6/- 12 x 10 ... 7/6 20 x 16 ... 21/-

HAND COLOURED, IN OILS (GREY MOUNT):—
20 x 15 (MOUNT 24 x 19) ... 31/6

**FLIGHT Office, 36, Great Queen Street,
Kingsway, London, W.C.2.**
Holborn 3211 and 1884.

AT LAST SOLO

£1 per hour on Moths!

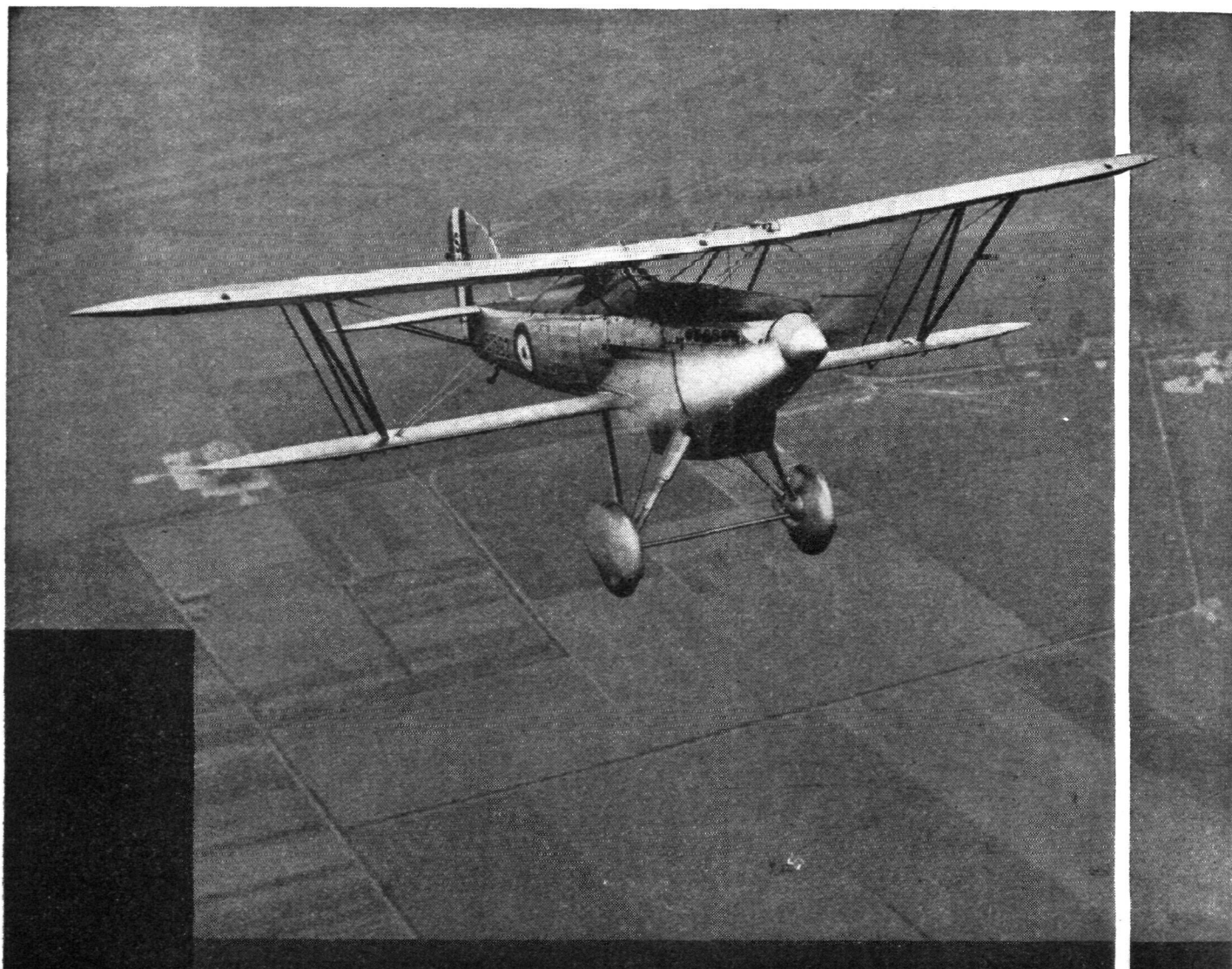
inclusive at Contract Rate (50 hours). The cheapest flying in the world. Only 15 miles from the centre of London.

DUAL £2. Ordinary Solo only £1 5s. 0d. per hour inclusive. Monthly membership £1 1s. 0d. Residential accommodation in the Clubhouse at reasonable terms.

Full particulars from:—

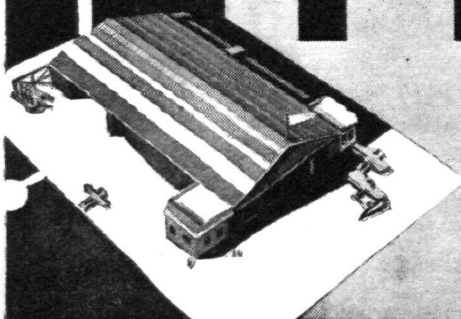
The Herts and Essex Aero Club,
Broxbourne Aerodrome, Nazeing, Essex.
Tel.: Hoddesdon 453.

Save time by using the Air Mail.



THE FAIREY "FIREFLY" MK.II. . . . the premier single seater fighter in the world to-day, unsurpassed in performance and equally remarkable for its extreme and ready manœuvrability. This type of aircraft has been chosen for Belgian Air Force equipment after exhaustive trials and in the face of the strongest competition. As an indication of their satisfactory behaviour under Service conditions there have been placed recent further contracts.

FAIREY



FLIGHT

The
AIRCRAFT ENGINEER
AND AIRSHIPS

First Aeronautical Weekly in the World. Founded January, 1909

Founder and Editor: STANLEY SPOONER

A Journal devoted to the Interests, Practice and Progress of Aerial Locomotion and Transport

OFFICIAL ORGAN OF THE ROYAL AERO CLUB OF THE UNITED KINGDOM

No. 1297. (Vol. XXV.) 25th Year.
No. 44.

NOVEMBER 2, 1933

Weekly, Price 6d.
Post Free, 7½d. Abroad, 8d.

Editorial Offices: 36, GREAT QUEEN STREET, KINGSWAY, W.C.2
Telephone: (2 lines), Holborn 3211 and 1884.
Telegrams: Truditur, Westcent, London

Subscription Rates, Post Free.

UNITED KINGDOM			UNITED STATES			OTHER COUNTRIES		
	s.	d.					s.	d.
3 Months ..	8	3	3 Months ..	\$2.20		3 Months ..	8	9
6 " ..	16	6	6 " ..	\$4.40		6 " ..	17	6
12 " ..	33	0	12 " ..	\$8.75		12 " ..	35	0

CONTENTS

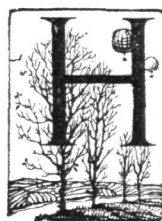
	PAGE
Editorial Comment:	
Back to Paddles?	1085
The Eyes of the Army	1086
Rohrbach Rotating Wing Aeroplane	1087
" Out of the Flying Pan	1090
Air Transport: Commercial Aviation in China	1091
From the Clubs	1096
The "Fiesler 5" Monoplane	1100
Airport News	1101
Airships from the Four Winds	1102
Royal Aero Club Official Notices	1104
Pilots' Licences in Canada	1105
Correspondence	1106
Book Reviews	1107
A Reliable Model Aero Engine	1109
The Aden Command	1110
Army Co-Operation	1110
Royal Air Force	1111
Air Post Stamps	1112

DIARY OF CURRENT AND FORTHCOMING EVENTS

Club Secretaries and others desirous of announcing the dates of important fixtures are invited to send particulars for inclusion in this list:—

- 1933.
- Nov. 2. Air Command, Legion of Frontiersmen, Gen. Meeting and Dinner at Hambone Club, Gt. Windmill St., W.C.
 - Nov. 2. "The Practical Side of Motorless Flight." Lecture by S. Humphries before Imperial College Gliding Club, S. Kensington.
 - Nov. 2. "Variable-Pitch Airscrew and Variable Gears," Lecture by W. G. Jennings before R.Ae.S.
 - Nov. 3. Norfolk and Norwich Aero Club Annual Ball, at Thatched Assembly Rooms, Norwich.
 - Nov. 3. Northamptonshire Ae.C. Dance at George Hotel, Kettering.
 - Nov. 15. Entries close for 1934 International Touring Competition, Poland.
 - Nov. 16. Herts and Essex Ae.C. Annual Dinner and Dance, Wharnclyffe Rooms, Hotel Gt. Central, London.
 - Nov. 16. "Stiffness of Aeroplane Wings." Lecture by H. Roxbee Cox before R.Ae.S.
 - Nov. 24. Central Flying School "Coming of Age" Dinner, at May Fair Hotel.
 - Nov. 24. Yorkshire Ae.C. Annual Dance, Hotel Majestic, Harrogate.
 - Nov. 25. Comrades of the R.A.F. Reunion Dinner, at Thames House Restaurant, Millbank, S.W.1.
 - Nov. 30. "Tail Buffeting." Lecture by Dr. W. J. Duncan before R.Ae.S.
 - Dec. 1. No. 3 Sqdn. R.F.C. and R.A.F. Reunion Dinner, at May Fair Hotel.
 - Dec. 1. No. 70 Sqdn., R.A.F., Reunion Dinner, at R.A.F. Club, Piccadilly.
 - Dec. 1. Lancashire Ae.C. Annual Ball, Midland Hotel, Manchester.
 - Dec. 1. Hampshire Ae.C. Annual Dinner and Dance, South Western Hotel, Southampton.

EDITORIAL COMMENT



ISTORY has a curious way of repeating itself, and we of the aviation world seem to be particularly singled out for demonstrating the fact. Although the early visions of human flight dwelt generally on some means of direct lift, and many years afterwards different forms of direct-lift machines

were suggested, it was the indirect type of aircraft which first succeeded, and it is that type which has brought flying to its present state of development.

Back to Paddles?

Helicopters have been suggested, some have been built, a few have flown—after a fashion—but hitherto the direct-lift machine has made little headway. Señor de la Cierva had the inspiration, it is difficult to call it otherwise, to find the compromise between the helicopter and the aeroplane. Like the former, his Autogiro is supported by rotating blades, but it shares with the latter the indirect method of attack. An engine drives an airscrew and hereby gives the craft as a whole its forward speed, which is made use of to give lift on the rotating blades. The plain helicopter as once imagined, i.e., an aircraft in which the engine drives the rotating blades direct, can, we think, be said to have been quite definitely ruled out as a practical proposition.

During the last few years there has been a concerted attack on the direct-lift problem along a different line of approach. Instead of the large propeller, rotating in a horizontal plane, driven by an engine, the new direct-lift machine uses aerofoils made to rotate around a horizontal axis. In other words, an air analogy, in some degree, to the paddle wheel of earlier steamships. The problem has been attacked by slightly different methods in the United States, in France and in Germany. In all three countries extensive research and experiments have been carried out, and we believe we are right in saying that the conclusions reached as a result in all three countries was the same, namely, that there "is something in it." The paddle wheel of the air, from theoretical considerations backed by model and full-scale tests, has definitely been found to be a practical proposition from an aerodynamic viewpoint. Whether or not the mechanical difficulties

are capable of a fairly simple solution remains to be seen.

In this week's issue of *FLIGHT* we publish the first part of an article by Mr. W. S. Shackleton on the Rohrbach rotating wing aircraft. The other two principal investigators are Mr. Platt, in the United States, and M. Strandgren, in France. Mr. Shackleton holds the view that the Rohrbach system offers the most efficient solution. Whether he is right or wrong we should not care to judge, but at any rate we feel that his article will be read with interest.

Unfortunately Mr. Shackleton gives the Rohrbach main data near the end of his article, so that our readers will have to wait until next week for them. In the meantime it may satisfy them to know that calculations made by Dr. Rohrbach, based upon tests made in Germany by the D.V.L., indicate that a machine somewhat like that shown in the artist's impression, fitted with an engine of 240 b.h.p., would have a tare weight of 1,500 lb. and would have a disposable load of 600 lb. if vertical ascent were demanded. Should this not be essential, and if a minimum speed of 13 m.p.h. could be tolerated, the disposable load could be increased to 1,140 lb. At 2,100 lb. gross weight the estimated maximum speed is 124 m.p.h. at sea level and the minimum speed 0. At 2,640 lb. gross weight, *i.e.*, with disposable load of 1,140 lb., the estimated maximum speed is 118 m.p.h., and as the minimum speed at this weight is 13 m.p.h., the speed range is more than 9:1. In practice there would be relatively few cases where quite vertical ascent, or in other words hovering, would be essential, and a minimum speed over the ground of 13 m.p.h. in still air should be low enough to enable the machine to be used from very restricted areas.

❖ ❖ ❖ ❖

Poverty of air equipment for the Army must cause concern to all citizens, and we have often expressed our anxieties at the present state of affairs. There are only five squadrons allotted for army co-operation work, four of them equipped with the "Audax" and one with the "Atlas." These squadrons are only capable of close patrols and medium patrols. There are no Army squadrons capable of long patrols or raids, and there are no Army fighter squadrons. Five squadrons, unprotected by fighters, would be utterly insufficient to provide all the reconnaissance which even our small Army would need.

The question of personnel is quite as serious as that of number of units. The officers in the army co-operation squadrons have to become highly specialised experts—in fact, there is no branch of Royal Air Force work in which the specialisation needs to be more intense. It would hardly be too much to say that a pilot coming new to the work would be entirely useless to the Army for some considerable time. Yet Air Force officers are not permitted to make this branch of air work their life's profession. When they have done so many years in one of the A.C. squadrons and have become thoroughly proficient, they are usually transferred to a squadron of a different nature where their expert knowledge of Army problems is pretty sure to grow rusty.

It has been said in defence of this system that the constant transfer of officers from one type of squadron to another is a wise policy, in that it ensures for

the Army squadrons, as well as for other classes of squadron, a reserve of specialists scattered throughout the whole of the Air Force. We very much doubt the use to the Army of pilots who have certainly kept in flying training but have grown rusty, and are certainly not up to date, in their knowledge of the Army's special requirements. An even stronger criticism of the system is that, even if every officer in the Royal Air Force had been given experience of every form of flying, it would still be impossible for the Air Force to reinforce any one of its branches from another (*e.g.*, army co-operation from Air Defence of Great Britain) until the total number of Air Force units exceeds the minimum required for all branches of its work.

At present Air Defence of Great Britain is 10 squadrons short of the 1923 programme, the flying-boat squadrons are far below our needs, naval experts allege that the Fleet Air Arm is too small, and the overseas squadrons are certainly not in excess of requirements. In whichever direction we look, we are struck by the absolute impossibility of the army co-operation squadrons borrowing pilots to increase their strength.

The War Office seems to have realised this, and, in agreement with the Air Ministry, has formed a scheme for training an increased number of Army officers in air work. We publish the main part of the official notification on another page. In general, the scheme resembles the scheme for training naval officers in Fleet Air Arm work. In brief, eight Army officers will be seconded to the Royal Air Force every year, for a period of four years, for training in A.C. squadrons. The total number undergoing this training at any one time may amount to 32. They will be given temporary commissions in the Royal Air Force, but will wear their own uniform with "wings" on the breast. After four years of flying they will return to their Army units for two years, and then may do another two years with the A.C. squadrons.

This is a very good scheme, and will enable the Army to build up a useful reserve of pilots in the Army, which may make all the difference in the world if an emergency arises. It is true that a man who has not flown for some time gets out of flying practice, and a refresher course at a flying school may be necessary before he can join a squadron. An officer of the R.A.F. Reserve is only asked to do 20 hours' flying a year, and this could be hurried through in a very few days if there were need for intensive training. The Army officers could also be hurried through their flying refresher courses. At least they would not be rusty in Army thought and Army work. If the Army had to choose between a pilot who was rusty in his flying but up to date in Army work, and one who was in flying training but had forgotten the military side of the business, it is probable that the former would be preferred. In the Army, flying, like riding and engineering and other accomplishments, is only a means to an end. The flying has to be quite good, and so must the riding be, but the soldier who has only mastered the arts which are called, in good old Anglo-Saxon, aviation and equitation, has not yet begun to be useful. Therefore, the more the Army learns to depend on pilots of its own the better it will be for the Army.

THE ROHRBACH ROTATING WING AEROPLANE

By W. S. SHACKLETON

Mr. W. S. Shackleton, after designing the A.N.E.C. Monoplanes for the Lympe Light Plane trials some years ago, became chief aircraft designer to the Beardmore Company. Ill-health compelled him to resign that post and go to Australia for some years. Upon his return to England, Mr. Shackleton designed the little S.M.1 pusher monoplane, which incorporates many unusual features. While with the Beardmore Company, Mr. Shackleton supervised the building of the "Inflexible," and in that way came into close touch with Dr. Rohrbach. It is therefore natural that, when Dr. Rohrbach designed his rotating wing aeroplane, Mr. Shackleton should be interested, and the result of his interest has been that he has secured the sole rights in the machine for the British Empire. Mr. Shackleton wishes us to point out that in the following article, written exclusively for FLIGHT, questions connected with international patent law have made it inadvisable to reproduce general arrangement drawings, stability and performance calculations, and details of the drive which has been designed for rotating the wings. Such details will, of course, be disclosed to anyone seriously contemplating the building of a machine in this country under licence.—ED.

THIS machine, the latest project of Dr.-Ing. Adolph K. Rohrbach, the famous German constructor of large all-metal aeroplanes and flying-boats, has attracted considerable attention in scientific and aeronautical circles throughout the world. It is felt, therefore, that a semi-technical description of the machine, together with an account of the progress already made with this and similar types, will probably be of more than ordinary interest. The fact that Dr. Rohrbach's name is associated with the development will go a long way towards removing that intolerant prejudice with which most novel schemes are received by practical engineers. In this connection, attention is drawn to the 1,000-h.p. Zeppelin "Staaken" four-engined monoplane developed under Dr. Rohrbach's direction in 1919.

This aeroplane, constructed entirely of metal and fitted with wheel brakes and front wheel to prevent nosing over, although completed 14 years ago, would be accepted at the present time, if fitted with the engines now available, as a thoroughly modern design. With a wing span of 102 ft., it had a top speed of 131 m.p.h., and with 20 passengers a range of 760 miles. After making some 17 highly successful test flights, it was broken up by order of the Inter-Allied Aeronautical Commission, to their discredit it may be added.

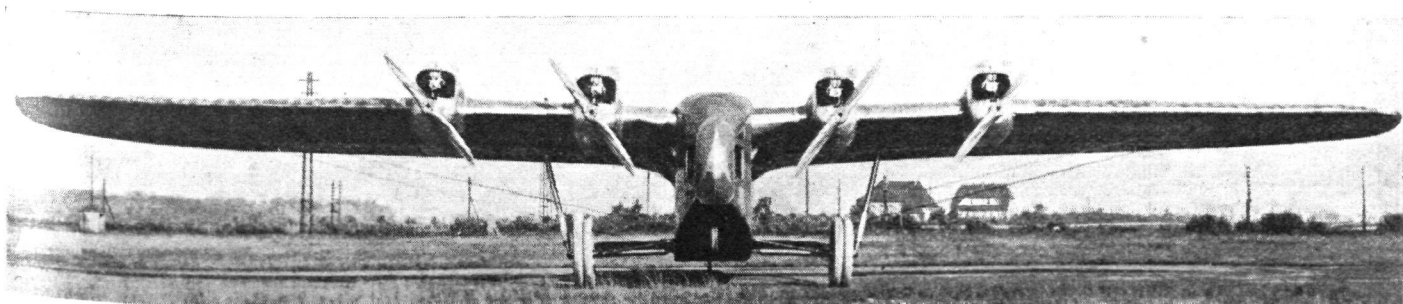
General Principles of the Rohrbach Rotating-Wing Aeroplane

A perspective general view is shown on the next page. It will be seen that the fuselage, undercarriage and tail unit are of approximately conventional type. The usual fixed-wing system is, however, replaced by a rotating system consisting of three or more narrow-chord wings of normal thick aerofoil section, braced by means of struts and tie rods to a revolving cantilever shaft. This shaft is continuous across the span and rotates in fully-floating bearings carried in a fixed central casing built rigidly into the fuselage structure. The whole wing system is rotated through worm or spiral-bevel gears from an engine or engines carried in or at the nose of the fuselage, or in separate nacelles over the fuselage. In a transport or similar design, the engines could be accessible during flight if this feature was considered desirable. A free-wheel

device, or one-way clutch, allows free auto-rotation of the wings in the event of engine failure and when the engines are being throttled below a predetermined speed. Lift is generated by suitably feathering or oscillating the wings throughout the circle of revolution. This is accomplished in the Rohrbach machine by a simple but extremely ingenious control gear operating the wings through push-and-pull rods, which positively and progressively changes the angles of the wings (measured against the respective tangents of the circle of revolution) to suit the particular operating conditions. The wings rotate in a *forward* direction at the top of the circle and at a sufficiently high speed to develop useful lift round the lower part of the circle, even with a high translational velocity of the aircraft. These wings develop a useful lift or propulsive force at practically every position round the circle of revolution. Round the upper portion of the circle the effective lift force naturally reaches its greatest value, as the velocity relative to the attacking air-stream is greatest in this zone. Around the forward portion of the circle, high lift and propulsive forces are produced, whilst around the lower sector of the circle positive lift forces are again produced, as the wings have in this section been oscillated past the "no-lift" angle to a negative angle of attack. The action is illustrated in a diagram. When hovering, ascending or descending vertically with no horizontal air stream directed against the aircraft, the resultant lift from the wings acts in a vertical direction. This resultant force can be changed in direction by a simple fore-and-aft lever movement so as to have a forward component of the amount required to produce the desired forward speed. This force can also be inclined backward of the vertical to produce either a decelerating component on the aircraft or backward flight at any speed which might be considered useful.

Rolling moments are generated by means of a differential oscillation of the two wing sets, this giving increased lift on one side and reduced lift on the other. This differential lift is produced by the pilot in the usual manner by a lateral movement of the joystick, which motion changes the respective oscillation fulcrums.

Yawing moments are similarly produced by varying the forward inclination of lift on the two wing sets, the yawing



THE "ZEPPELIN STAAKEN": This machine was designed by Dr. Rohrbach and built in 1919. It was destroyed by order of the Inter-Allied Aeronautical Commission.

ONE WAY OF DOING IT: An artist's impression of how a machine using the Rohrbach system of rotating wings might appear. This machine was first described in FLIGHT of February 2, 1933.



control being actuated by foot pedals in the usual manner. This is designed to give full control when hovering, since with no airflow over the tail surfaces the usual rudder control would be inoperative. In an actual machine the rudder would probably be interconnected so as to damp out any oscillations in normal flight. In the event of engine failure, a free-wheel device installed in the transmission allows the wings to revolve with the engine or engines stopped. When free-wheeling, the wing oscillation controls are automatically set to give the most favourable attitudes for slow descent. Tests on full-scale and model wings have proved that the wings will continue to auto-rotate with the engine power cut off, at a sufficient speed and generating sufficient lift to ensure a controlled descent at a sufficiently low vertical velocity. The flight path under these conditions can be varied at will from the flattest glide (gradient about 1 in 9) to a vertical descent. When hovering or flying at all speeds the torque reaction of the engine drive is compensated by the pendulum effect of the fuselage around the wing shaft. In vertical ascent under full power the stern of the fuselage would be inclined downward by about 6 deg. against the horizon. With the motor power cut out, however, the bow would be inclined downward at about 6 deg. With other operating conditions, the equilibrium positions of the fuselage are between the two above-mentioned extremes. The possibility of the fuselage as a whole developing a pendulum oscillation about the rotor shaft when hovering has been mentioned by a prominent aircraft designer in England. It can be asserted with confidence that this could not occur, owing to the damping produced by the great inertia of the rotating masses in the engine and rotor. In order to oscillate, the rotational speeds would have to be accelerated and decelerated at the same period as the oscillation. At reasonable forward speeds the damping action of the horizontal tail surfaces is sufficient to maintain the longitudinal attitude of the fuselage in a substantially

horizontal plane. The tail is operated by a hand wheel through the usual irreversible mechanism, no elevator control of the usual kind being fitted. The term "ground angle" has no significance on a machine of this type, as a change in the pitching attitude is not accompanied by such a corresponding change in the angle of incidence of the wing as in an aeroplane of conventional design. Owing to the relatively high lift obtainable from a given area of wing surface, it is possible to keep the effective angles of attack low, with a corresponding increase in efficiency. Tests have proved that the rotating-wing system is non-stalling.

The wings give little or no lift when the machine is standing at rest on the ground with the rotor stationary. Consequently aircraft of this type could be safely left out on the aerodrome even in high winds. An adjustable brake is provided to prevent the wings revolving under such conditions. The weight of individual components would be carefully checked and adjusted to secure uniformity and correct balance. The question of vibration in the structure due to fluctuating aerodynamic loads has been investigated, also certain out-of-balance forces have been allowed for in stressing the design. The elastic resonance period of the whole structure is quite different from the period induced by air forces on the wings. All these points are already confirmed by running tests with rotating wings of full size. The effect of gyroscopic forces and couples has also been investigated mathematically.

FORERUNNERS OF THE ROHRBACH ROTATING-WING AEROPLANE

As far as can be ascertained, airwheels were used for the first time in 1786 with the intention of driving the Brissay balloon. Since then many inventors have endeavoured, on paper and by actual experiment, to develop improvements in airwheels for flying machines. The following is a short description of the line of development during the last 50 years leading up to what is claimed to be the first physically correct solution—the Rohrbach revolving wing.

Revolving surfaces may be broadly divided into two groups:—

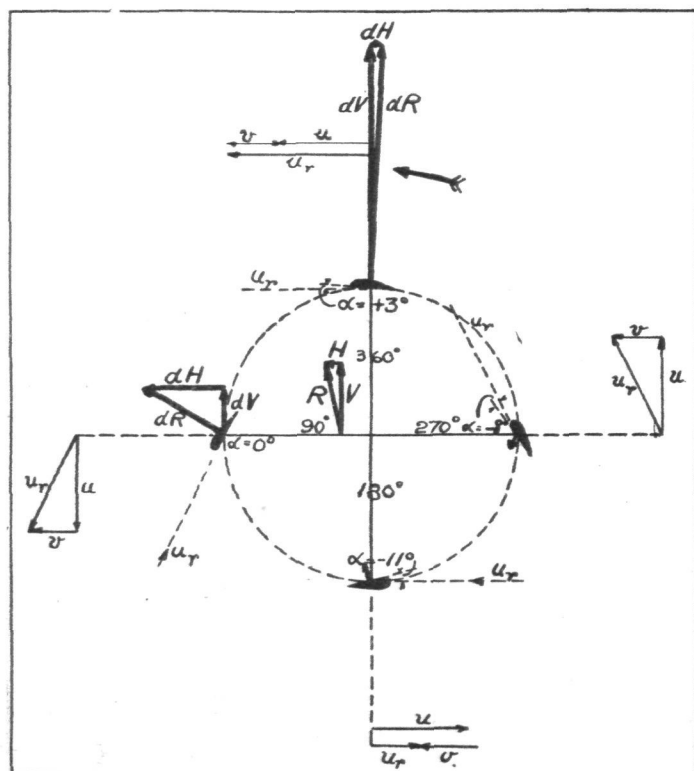
(1) Pusher surfaces intended to *push* the air along as the surfaces move. The absolute inefficiency of this system is recognised.

(2) Surfaces of aerofoil shape which cut through the air with a certain angle of attack. This system, with adequate dimensions of the surfaces and with appropriate control of the angle of attack, gives a high degree of efficiency.

Revolving Pusher Surfaces

Many proposals are known concerning revolving pusher surfaces which are provided with a plurality of flaps opened during their ascent in order to permit the air to pass freely, and closed during their descent with the intention of pushing the air downwards.

A system of this kind is described by van Lammeren. Other inventors propose to use closed pusher surfaces, which at some distance from a shaft attached to spokes are adjusted as they rotate to horizontal and vertical positions with the intention of providing a greater resistance to the descending elements, and a minimum resistance to the ascending ones. Airwheels with pusher surfaces of this kind, in imitation of the paddle-wheels of steamships, were proposed at first only as forward driving means for airships and flying machines. Wellner (Germany) seems to have been the first inventor, and he, as early as 1883, proposed to use the so-called Oldham wheels, not only for the generation of propelling forces, but also for the generation of lift forces in flying machines. In this system he intended to produce a forward impulse by a helical twisting of the revolving surfaces which were arranged with the revolving axis in the direction of flight.



THE ROHRBACH WAY: Diagram showing the action of air forces on the wing.



• England to Australia Australia to England RECORD FLIGHTS

- 1919 - ROSS - SMITH**
- 1926 - COBHAM**
- 1928 - HINKLER**
- 1930 - AMY JOHNSON**
- 1931 - SCOTT**
- 1931 - MOLLISON**
- 1931 - BUTLER**
- 1932 - SCOTT**
- 1933 - KINGSFORD - SMITH**

they all relied on

K.L.G

PLUGS

K.L.G. SPARKING PLUGS LTD.
PUTNEY VALE, LONDON

Save time by using the Air Mail

Standard Radio



As supplied to
the Brazilian
Navy.

ATR.2. A combined short and medium wave-length transmitter and receiver for use on long distance Civil air routes and for flying boats, etc.
Wavelength range:—40—80 metres and 500—1,200 metres.

On long distance flights, when communication on medium waves is no longer possible owing to distance or atmospheric interference, the adoption of short waves will often re-establish contact with the ground. The ATR.2 equipment is therefore eminently suitable for air routes over tropical countries and for use in long range flying boats.

Write for our illustrated brochure which gives full details of all ATR equipments.

Advertisement of Standard Telephones and Cables Limited,
Aerodrome Road, London, N.W.9.
(Telephone: COLindale 6533.)

“THE HEYFORD” EXPRESS NIGHT BOMBER

DESIGNED AND PRODUCED

FOR THE

ROYAL AIR FORCE

BY

HANDLEY PAGE LTD.

CRICKLEWOOD

LONDON

TELEGRAMS: HYDROPHID, CRICKE

TELEPHONE: GLADSTONE 5454

Kindly mention “Flight” when corresponding with advertisers.

The surfaces of the Oldham wheels during each revolution of the wheel made a semi-revolution themselves, around an axis parallel to the shaft, so that on the one side of the circle of revolution they were standing radially, i.e., transverse to the direction of their movement, while on the other side of the circle of revolution they were standing tangentially, i.e., parallel to the direction of their movement. These angular positions of the surfaces were so regulated, that the normals of all surfaces positions intersected in one and the same point on the circle of revolution, the so-called "normal-intersection-point" (see diagram). In 1894, C. Oetling (Leipzig) proposed, with his projected flying machine, a similar "wing-wheel" with automatically-adjusting paddles, for the generation of lift forces. The shaft of this wing wheel lay in the direction of flight. Oetling has already clearly defined the above-mentioned "normal-intersection" law of positioning the surfaces.

The above examples form but a very small portion of the many impractical projects—still increasing in number—which propose to generate propelling or lift forces by means of pusher surfaces intended to "press on an air-cushion."

Revolving Surfaces of the Aerofoil Principle

The invention of a flying machine by G. Koch (Munich) also provided for two Oldham propelling airwheels, wherein the surfaces had to make a semi-revolution about themselves during each revolution of the wheel. G. Koch, however, seems to have been the first to recognise that the pusher surfaces of an Oldham-wheel, at certain ratios of the revolving velocity of the wheel to the translational speed of the aircraft and at a segment of the circle of revolution, move in an inclined position relative to the air, thus working on the aerofoil-principle during a certain period of each revolution.

In 1897, Koch, in a description of his invention, referred to this generation of lift forces in the upper portion of the circle of revolution of such propelling airwheels. In order to regulate the magnitude of these additional lift forces, Koch proposed to vary the periodically-changing angles of attack relative to the air of the inclined surfaces, by means of a controlling device permitting the displacement of the "normal intersection" point along the periphery of the circle of revolution. Besides this, Koch mentioned a differential device intended to produce on both airwheels, lift forces or propelling forces of different values, for controlling purposes. The airwheel designed by Koch was actually constructed and tested with the financial backing of Maschinenfabrik Augsburg, Kommerzienrat H. Scheidemann (Landshut), E. von Linde, Dr. E. Lucius (Frankfurt a.M.), and others. In agreement with the general aerodynamic notions of that time, however, the structural dimensions of Koch's wheel were not sufficiently large to obtain air forces of the value required for the purpose. Later proposals, e.g., Hawkins (England) were based on the same principle as the design of Koch.

The propelling wheels of Kirsten-Boeing (U.S.A.), which were intended for the airship "Shenandoah," also worked on a principle very similar to that of the old Koch airwheel.

Oscillation by Eccentric Control

Completely leaving the system of the airwheels of Koch, Hawkins, Kirsten-Boeing, etc., Wellner (Germany), in 1894, for the first time, disclosed another and, for various reasons, more efficient system of positioning revolving surfaces. The revolving surfaces of Wellner's "sailing wheels" were intended to assume, at every moment, an inclined position relative to the air. As Wellner explained, they were thus to have an effect similar to that of the up and down beating wings of a forward-flying bird, and of the wings of the then known glider aeroplanes, which moved in an inclined position relative to the surrounding air. In order to obtain the desired effect, Wellner used a stationary eccentric with control-rods connecting the eccentric to control-levers on the revolving wings. An eccentric control of this kind produces a periodic angular oscillation of the revolving wings against the respective tangents to the circle of revolution, which, with each revolution, repeats itself approximately in the form of a sinus oscillation.

Thus, for the first time, Wellner proposed to utilise the aerofoil effect of revolving surfaces for the generation of lift forces in the upper and in the lower portion of the circle of revolution. However, Wellner failed to recognise the possibility of producing, by an angular displacement of the eccentric, propelling forces as well as lift forces. Therefore, he proposed to place the revolving shaft of his "sailing wheels" parallel to the direction of flight, and to produce propelling forces by means of helical ribs protruding from the revolving surfaces.

Wellner believed his "sailing-wheel" with only 80 h.p., to be capable of a lifting force of 6,400 kgs. Von Parseval, however, proved, in 1894, that an airwheel of Wellner's design, to be able to hover with 6,400 kgs., would require at least 1,600 h.p.!

A large-sized model of a Wellner "sailing-wheel" was tested in Vienna, with the financial backing of the Industry (Siemens-Halske, etc.). These tests, however, were unsuccessful, since at that time—though most people were not aware of the fact—nearly all the physical and technical data required for the design were not then available.

Thirty years later, in 1924, a flying-machine which, in all basic characteristics resembled the Wellner "sailing-wheel," was constructed in France, designed by Moineau. This machine, however, failed in structural strength, and owing to other deficiencies, could never be made to fly.

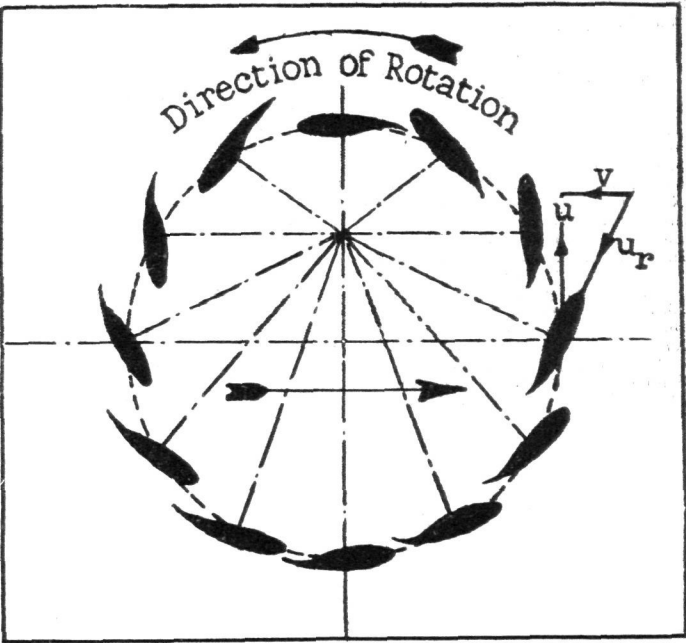


DIAGRAM ILLUSTRATING "NORMAL INTERSECTION" POINT SYSTEM: In the opinion of Mr. Shackleton this is inferior to the Rohrbach system.

Revolving aerofoils with eccentric control are described in a number of more recently issued patent specifications, e.g., Nemeth (U.S.A., 1920), Moineau (France, 1924), Strandgren (France, 1924), Edwards (England, 1925), Platt (U.S.A., 1927), Laskowitz (U.S.A., 1930).

The said patent specifications repeat themselves in explaining that an angular displacement of the eccentricity will alter the direction and that an alteration of the amount of eccentricity will alter the size of the air force generated at a certain number of revolutions of the revolving wings. The angular displacement and the alteration of the amount of eccentricity are obtained either by means of two independently displaceable eccentrics, one of which is placed around the other, or by means of one eccentric, the centre of which can be displaced in two different directions. The variability of the air force direction produced with these eccentric adjustment devices, enables propelling forces to be generated in addition to lift forces and, therefore, makes it possible to dispense with an airscrew. Therefore, in most of these designs it was preferred to place the shaft transverse to the direction of flight. There are also several proposals to adjust the eccentricity differentially in either wing, in order to control the direction of flight.

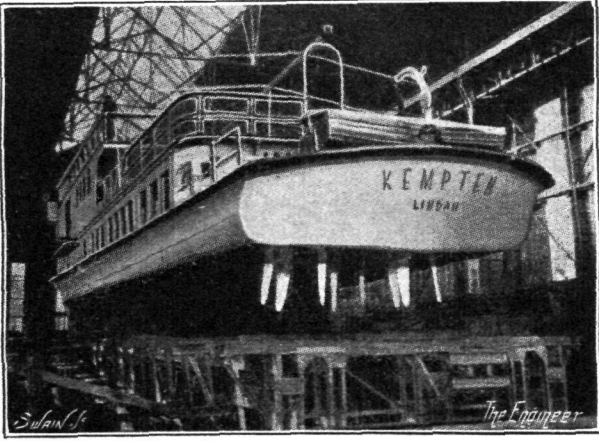
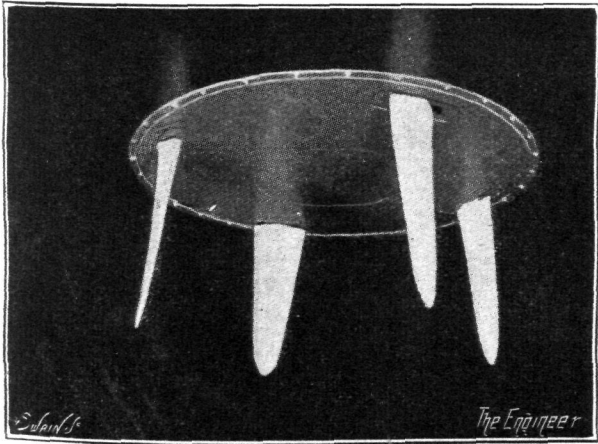
In the invention of Edwards, the revolving velocity of the wings is inferior to the translational speed of the aircraft. Therefore, the concave side of the oscillating wing is always turned downward.

Auto-rotation

Edwards (1925) and Platt (1927) in their patent specifications, point out for the first time, that the revolving aerofoils, if no engine power is applied, are kept in auto-rotation by the windmilling effect of the passing airflow, so that with appropriate dimensions of the revolving wings—even with the motor-power cut out—the lift forces so produced are sufficient adequately to regulate the sinking velocity of the aircraft. This feature is cleverly used in the well-known Autogiro machine where the rotor is always free running. If, however, in this type of machine, the motor were coupled to the rotor, torque reaction forces would tend to turn the machine around the rotor axis, and so far as is known, no satisfactory means of resisting this force has been devised.

Besides the oscillation by eccentric control, the above mentioned system of oscillation by "normal intersection" control was developed.

Koch, Kirsten-Boeing, etc., began by displacing in the peripheral direction the intersection point of the normals on all revolving surfaces. The combination of the said peripheral with a radial displacement of the "normal-intersection" point, permits of varying together with the direction also the amount of the generated air force, as, for instance, disclosed by Kahn (1924),



THE MARINE PROTOTYPE : We are indebted to our contemporary, *The Engineer*, for these two views of the Voith-Schneider marine propellers on one of the motor vessels operated on Lake Constance by the German State Railways.

Strandgren (1924) and Schneider (1925), the inventor of the famous Voith-Schneider propeller.

The Voith-Schneider Marine Propeller

The well-known and highly successful Voith-Schneider propeller, which operates in some points in a similar manner as the Rohrbach Rotating Wing, is illustrated in a photo. The Voith-Schneider propeller rotates about a vertical axis, the cantilever blades projecting from a revolving drum flush with the underside of the stern plating. The blades can be "feathered" to give small or large forces in any desired direction. This type of propulsion has been in use on Lake Constance for many years on many vessels including the Deutsche Reichsbahn-Gesellschaft boats "Augsburg" and "Kempten" with recorded thrust efficiencies up to 80 per cent. Tests have shown that the efficiency of the Voith-Schneider propeller is considerably in excess of the screw propeller. In addition the manoeuvrability of the boat is very greatly increased and without the use of rudders or steering gear.

The following extract is taken from *The Marine Engineer* for November, 1931:—"At a recent meeting of the Hamburg Tank Society held in Hamburg, the marked superiority of the Voith-Schneider blade-wheel propulsion over screw propulsion was discussed. The present report reviews the discussion. Every type of propulsion involves subsidiary losses. In the Voith-Schneider blade-wheel the frictional resistance of the drum amounts to some 3½ per cent. on the model, and some 2 per cent. on the ship. With the

ordinary screw propeller the boss losses are more important. The lack of wake uniformity is still more important. To get a true comparison between the two types of propulsion, propellers of equal disc-area ratio should be compared on a basis of thrust coefficient. Using an interpolation of Schaffran's data for the screw propeller against the actual test data for the Voith-Schneider propeller, after making all allowances for subsidiary losses in both types of propulsion, the superiority of the Voith-Schneider type is a full 14 per cent.

This comparison has been fully endorsed by tests on actual sister vessels having the two methods of propulsion, and for which careful trials and full-scale towing tests have recently been conducted. The results of these tests are shortly to be published in detail. Further details given in *The Engineer*, May 15, 1931, show the practical superiority of this system. A boat fitted with twin propellers rotating at constant speed could be started ahead or astern, stopped or turned in either direction round her own axis by operating the steering control in the desired direction, a separate lever regulating the speed ahead or astern.

A third lever with a transverse movement provides a means of setting the propeller blades so that the vessel is moved laterally—a manoeuvre which is most valuable when making or leaving piers and wharves. An increasing number of boats are now being fitted with Voith-Schneider propulsion.

(To be concluded).

"OUT OF THE FLYING PAN"

By W. O. MANNING, F.R.Ae.S.

Mr. Manning contributes the following amusing speculations on the possible effects of removing from the Air Ministry the control of civil flying. His fun, if one digs below the surface, gives cause for serious thought.

IN view of the criticism of the control of civil aviation by the Air Ministry, it seems worth while to consider what alternative there is, for it can be taken for granted that public opinion will not permit any pilot on any sort of aeroplane to career over the country as he pleases at any height he likes.

It seems inevitable that some regulations would be laid down, that aircraft owners would be made responsible for seeing that they were carried out, and that the people who would be responsible for enforcing the regulations would be the police, strongly backed up by the local magistrates. Whether this sort of control would be preferable to the present is a matter of opinion.

It is probable that a minimum factor of safety would be laid down by authority, and that it would be the responsibility of the manufacturer to see that it was adhered to. There would be no inspection whatever, but in place of this one might see occasionally that some unfortunate manufacturer was accused of "having with malice aforethought sold or caused to be sold an aeroplane of a strength less than that laid down by the regulations in that case made and provided, contrary to the peace, etc." Then we should have the entertaining spectacle of a bench of magistrates puzzling their brains over, say, the application of the Theorem of three moments, with the complicated trimmings to the said Theorem devised by the ingenious Mr. Berry.

However amusing such a spectacle would be to the initiated, it is hardly likely to be fair to the manufacturer concerned, as the magistrates, knowing nothing whatever about the matter under dispute, would be likely to decide it in favour of established authority, salving their consciences by reminding themselves that the defendant has a right of appeal, if his banking account will allow him to exercise it. If he cannot afford to appeal, this circumstance can hardly be considered the fault of the bench.

Following the precedent now established with regard to motorists where penalties are provided in cases where the owner does not keep his brakes and his tyres in good condition, it would be expected that similar requirements regarding the upkeep of aeroplanes would be demanded by the authorities of the private owner, and enforced by means of the village constable. And, as the motorist knows to his cost, great is the belief of the Great Unpaid in the intelligence of the rural police. "I saw the defendant flying low over the village obviously going to land on Farmer Giles' big field. While he was apassing over I saw one of his tail wires wobbling about. After he had landed I went up to the aeroplane and saw that one of the turn buckles on his tail was not locked in the approved manner as the ends of the locking wire were turned to the left instead of to the right. I then saw the defendant, showed 'im the wire, and told 'im that anythink he said would be used against 'im."

Magistrate: "Do you think, Constable, that the turn-buckle wire being incorrectly placed would cause the wire to wobble?"

Constable: "Yes, your Worship, because the air would catch hold of it in the wrong way, the direction of the twist being opposed to the pitch of the propeller. I should also say, your Worship, that he flew right over the Blue Lion, and if he had come down on it he might have set it on fire, and it's the only licensed house in the village."

Magistrate: "Puddlecombe is a very isolated village, is it not?"

Constable: "Yes, your Worship; it's a good five-mile walk to the next."

Magistrates retire to consider their decision, and on their return commend the constable, abuse the defendant, and inflict a heavy fine.

England—Australia Race

IN our issue of August 3, 1933, we published a summary of the regulations governing the England-Australia Race next year. The handicap formula has now been announced, and is as follows:—

HANDICAP FORMULA

$$V = 140 \left(1 - \frac{0.2L}{W-L} \right) \left(\frac{P}{A} \right)^{\frac{1}{3}}$$

L = Payload in lb.

W = All-up weight in lb. of machine complete with petrol, oil, personnel and freight ready for race.

P = Maximum horse-power at sea level at maker's normal r.p.m.

A = Wing area in sq. ft., including ailerons.

V = Air speed in miles per hour on which handicaps will be based.

(a) *Payload*.—The following only will be recognised as payload:—

- (1) 200 lb. will be allowed for each person carried together with his unsealed baggage; and
- (2) All sealed packages of any description, including the following:—

Excess baggage, spare parts, ballast, printed matter, etc.

For the purpose of sealing, all articles must be securely packed or wrapped.

(b) *Wind Allowance*.—Allowance will be made for general wind conditions existing over the course at the time of year during which the race is being run. This allowance will be determined beforehand and all nominators will know their full handicaps before the start of the race.

Air Transport.

COMMERCIAL AVIATION IN CHINA

THE Chinese are supposed to be the most enigmatic race in the whole world, and probably less is known about their country than about any country throughout the world. The Chinese Republic, which includes the autonomous states of Inner Mongolia, Outer Mongolia, Tibet, Sin-Kiang, and Manchuria, covers an area of just over four million square miles, and possesses a population of nearly 450 million persons, a quarter of the population of the world, which represents about 97 persons to every square mile; as a matter of comparison it is worth recording that the population of Europe is roughly 130 persons to a square mile.

As regards roads and railways China is very badly developed, and the continued state of banditry in which the country seems to remain makes travelling still more precarious. It would seem, therefore, that there should be a tremendous scope for aerial transport. If this be so then it has not been taken advantage of, for the number of air lines in China, considering the size of the country and its population, is small and seemingly inadequate.

The first attempt to establish civil aviation in China was made in 1919 when contracts were entered into by the Government with the Handley Page Co. for 6 passenger planes, with the Vickers Co. for 40 commercial and 40 training machines, and with Avro for 65 machines; the Vickers contingent included some "Vimys," which are reported to be still crated up untouched. Elaborate schemes were drawn up for the establishment of a network of airways, and an aviation school was opened at Nanyuan near Peking. Civil war, however, made all these schemes impossible. In the year 1929 the Ministry of Communications intended to operate a service between Shanghai and Chengtu, but in practice it never went further than Nanking. China Airways also maintained a service between Shanghai and Hankow on a contract basis for the Government. In July, 1930, this company was combined with another, and a new company was formed which was called China National Aviation Corporation. Meanwhile another



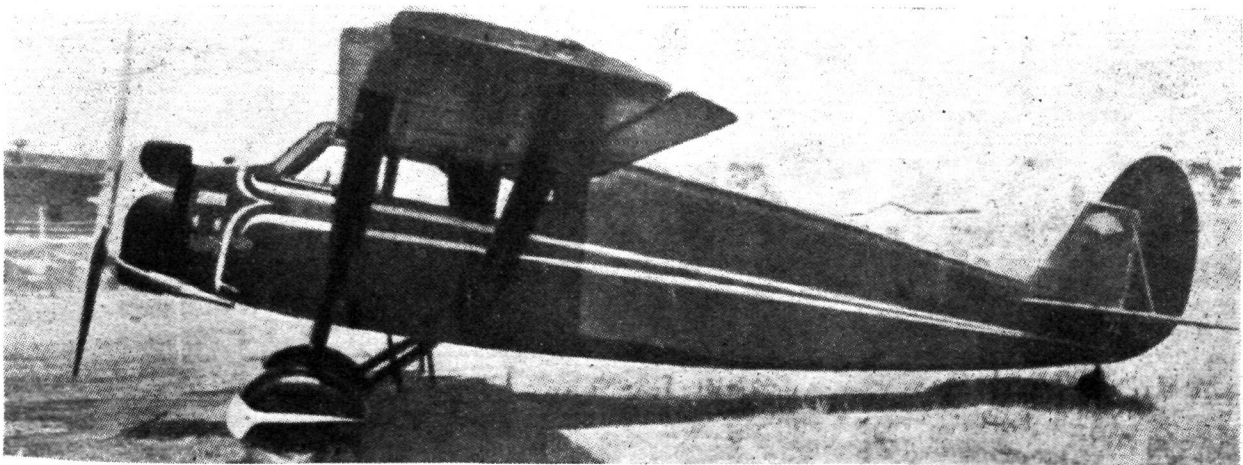
Sketch Map of the Airways of China.

scheme had also been inaugurated. As early as 1928 the German Luft Hansa approached the Chinese Government with a view to forming a company to form aerial communications between Berlin and Nanking, and as a result of protracted negotiations the Eurasia Aviation Corporation came into existence in February, 1930. These two companies represent all that is being done in China in civil aviation, but they are complementary to each other, not rivals. The China National Corporation is chiefly concerned with the development of internal lines, while the Eurasia Aviation Co. aims at establishing communications between China and Europe. The details of these companies' activities are as follows:—

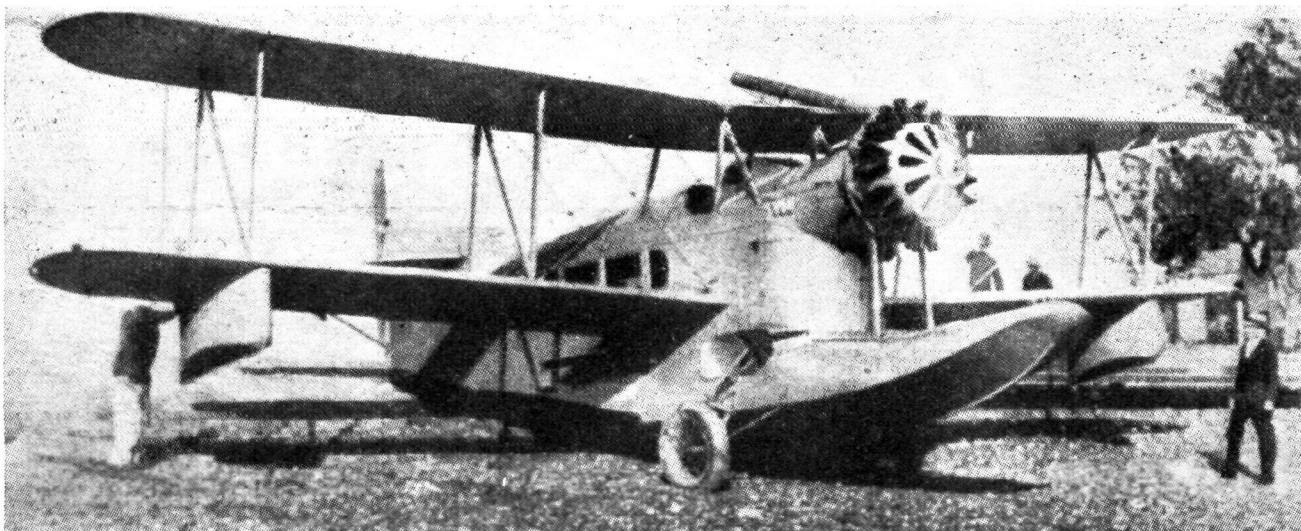
China National Aviation Corporation.

Shanghai-Hankow. Operated daily except Mondays, with stopping places and aerodromes at Nanking, Anking, and Kiukiang. This service was inaugurated in 1929.

Hankow-Chungking-Chengtu. Two flights a week, with



A Stinson cabin monoplane used by the China National Aviation Corporation.



A Loening amphibian used on the Shanghai-Hankow service.

stopping places at Shasi, Ichang, Wanhsien, and Chungking. This service was inaugurated in May, 1931, but only as far as Ichang; it was extended to Chungking in October, 1931, and to Chengtu in June, 1933.

Shanghai-Peking. Inaugurated in January, 1933, with three flights a week. Stopping places are at Haichow, Tsintao, and Tientsin.

Shanghai-Canton. A daily service, with stops at Wenchow, Foochow, Amoy, Swatow, and Hongkong.

Eurasia Aviation Corporation.

Shanghai-Manchouli. Inaugurated in May, 1931, but only operated for a short time, as the Japanese invasion of Manchuria caused a temporary stoppage.

Shanghai-Lanchow. A weekly service by way of Nanking, Ho Nan (Loyang), and Sian.

Peking-Ho Nan. A fortnightly service.

Liangchow-Urumtchi. A fortnightly service by way of Suchow, and Hami; this service is actually not in operation at present owing to trouble in Sin-Kiang.

In addition to these lines it is hoped to inaugurate shortly two more lines, from Sian to Canton by way of Siang-Yang, Hankow, and Chang-sha, and from Sian to Peiping by way of Taiyuan.

In the future it is hoped to fly regular services to Tchukuchak, on the Russian border, where connections will be made with Soviet air lines, and so into Europe. Most of the survey work for this project has already been carried out. Later, perhaps, it will be possible to establish a service direct to Berlin, which will bring Shanghai within six days of Berlin, and, if night flying becomes practicable, within four days.

As regards equipment, the China National Aviation Corporation possesses six Loening amphibians, and five Stinson landplanes; three more machines are reserve and two on order. The only repair depôt is at Hungjao, Shanghai. The flying personnel is almost entirely foreign, 10 of the pilots being American, 1 German and 1 French, but Chinese pilots are being trained, and in fact there are actually a few at the present time who act as second pilots. The Eurasian Aviation Corporation have 6 German pilots, who will also train Chinese as pilots. Both companies depend on air mail for the greater part of their business, and the following statistics show that the amount of work they do is far from small. The China National Aviation Corporation in 1932 carried 3,153 passengers and 48,014 lb.

of mail and freight; the Eurasian Aviation Corporation 589 passengers and 11,303 lb. of mail and freight.

Aviation in China is only in its infancy at the present, and the difficulties also which will have to be overcome before it can be really developed are far greater than we, who enjoy the more civilised amenities of a settled constitution, can rightly comprehend. The setting up and maintaining of depôts is not only made extremely difficult by the paucity of roads and rails, but is rendered highly dangerous by the incessant state of banditry in which the more out of the way parts of the country seem to remain. The configuration of China does not assist aviation, for there are high mountain ranges which have to be crossed, arid deserts, and wastes, large tracts of which are uninhabited and even uncharted. Forced landings in such districts might place the pilot and his passengers in an impossible position; and one pilot and his mechanic, for instance, who landed in Outer Mongolia were kept prisoners for months. The climatic conditions of China vary considerably from extreme heat to intense cold, and very fierce storms can be met. The two companies have established a meteorological service, but this is very limited, for in order to get reliable and comprehensive reports of the weather conditions along the air routes it would be necessary to establish an extensive system of meteorological stations all over China's vast expanse.

There is another great difficulty with which China has to cope, that of production. The country possesses an unlimited supply of raw material, but lacks the basic industries which produce the high grade manufactured materials necessary for the construction of modern aircraft. Though none of the proposals for the establishment of manufacturing companies have yet borne fruit, a start has been made towards the building of native planes. The aeronautical department of the Naval Ministry has turned out ten or so seaplanes which have proved practical for training purposes, but all of them had to be fitted with foreign engines.

The two companies mentioned may not at present be sound commercial propositions, but they have made a start, which is half the battle. Much work has been done and many obstacles overcome, and considering the nature and magnitude of the difficulties, China must owe more than a little to the enterprise of the only two companies who have had the courage to start operations. It is to be hoped that they will reap their reward.

IMPERIAL AIRWAYS, LTD.

Ninth Ordinary General Meeting—Striking Speech by Sir Eric Geddes

THE ninth ordinary general meeting of Imperial Airways, Ltd., was held on Monday, October 30, with Sir Eric Geddes in the chair. The following are extracts from his speech.

The Chairman pointed out that (as announced in FLIGHT last week) the gross profit for the year ended March 31, 1933, had increased from £152,797 to £266,150. A dividend

of 5 per cent., absorbing £23,402, was recommended, and ultimately passed.

Sir Eric said "The directors' report shows you the striking increase in the total traffic carried by the company's services, but it is still a great disappointment to us that the air mail should not be developing as fast as passenger traffic. If we are able to induce our own and

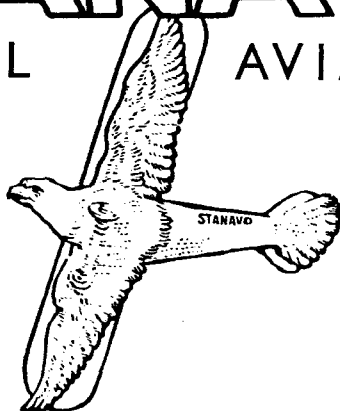
384·86 M.P.H. *for half an hour!*

Lieut.-Col. Pietro Scapinelli, who recently flew a Macchi-Castoldi 72 racing seaplane for 30 minutes at the phenomenal speed of 384·86 m.p.h. and won the newly instituted

BLERIOT COUPE DE VITESSE *used*

STANAVO

SPECIAL AVIATION FUEL



SUPPLIED BY THE PROPRIETORS OF

PRATTS

OUTSTANDING ACHIEVEMENTS ON STANAVO: World's long-distance flight record. World's air-speed record. World's 100 kilometre record. Air Marshal Balbo's Air Armada's Rome-Chicago-Rome flight. 51 successful trans-Atlantic flights. No trans-Atlantic flight with Stanavo has ever failed.

DISTRIBUTORS FOR GREAT BRITAIN

ANGLO-AMERICAN OIL CO. LTD., 36, QUEEN ANNE'S GATE, LONDON, S.W.1. Telephone: Victoria 6325
Proprietors of Pratts Ethyl, Pratts High Test, and Essolube Motor Oil

Save time by using the Air Mail.

Printed in England (a. 1933)

AND INTERNATIONAL COMMUNICATIONS LIMITED

Bravo Ulm.

OFFICE OF ISSUE
INTERNATIONAL
20 OCT 33
CENTRAL STATION
LONDON

1933 OCT 20 AM 4 42

CABLE ROUTES
WIRELESS ROUTES

Circuit. VIZEPD.1.

Clerk's Name.

Time Received. W. 324

1007 DERBY WA 24 20 0900

PALMER TYRE COMPANY CARE KEMSLEYS LONDON

PALMER WHEELS TYRES TUBES BRAKES ALL GAVE PERFECT SERVICE

THROUGHOUT ENGLAND AUSTRALIA AND RETURN FLIGHTS REGARDS

CHARLES ULM +

Telegram contains the following particulars in the order named:—
Message. Office of Origin. Number of Words. Date. Time handed in, and
Message. Office of Destination.

NO ENQUIRY RESPECTING THIS TELEGRAM CAN BE ATTENDED TO WITHOUT PRODUCTION OF THIS COPY.
REPLIES SHOULD BE HANDED IN AT ONE OF THE COMPANY'S OFFICES.

L & P (c)

- ★ FIRST FLIGHT TO AUSTRALIA by Capt. Ross Smith, M.C., D.F.C., A.F.C., and Lieut. Keith Smith. (Vickers-Vimy)
- ★ The FIRST SOLO FLIGHT by Mr. Bert Hinkler. (Avro Avian)
- ★ SOLO FLIGHT, 7 days, 4 hours, 50 minutes, Air Cdre. Sir Charles Kingsford Smith. (Percival Gull)
- ★ And THE LASTEST RECORD 6 days, 17 hours, 56 minutes, by Mr. Charles Ulm and his companions. (Avro 10)

All the above used
PALMER EQUIPMENT

PALMER
again!

THE PALMER TYRE LIMITED

ALDWYCH HOUSE, LONDON, W.C.2.

Telephone: HOLBORN 8461.

Telegrams: PALMERTYR, ESTRAND, LONDON.

Kindly mention "Flight" when corresponding with advertisers.

foreign postal administrations to remove the causes that hamper its development, I see no reason why the air mail should not develop in a similar way."

He continued "During the year under review the capacity of the services operated in Europe was increased, with the results shown in the directors' report, which I am sure will impress you. The capacity was increased by 37 per cent. over the previous year and the total traffic carried increased by 65 per cent. Passenger traffic increased by 86 per cent. over the previous year."

After mentioning the high standard of comfort maintained in the aeroplanes, Sir Eric said "We have not yet considered that the demand for night services is big enough to justify our operating them, but we are in a position to operate such services when it becomes profitable to do so. We have, in fact, operated services during the last two summers that, from the technical angle, at any rate, have been night services. These services, which were operating in the late evening, and on which we served an excellent dinner, were patronised by the public in the same way as our day services."

The company had been obliged to procure a larger departure station in Paris, just off the Boulevard des Italiens.

Turning to the England-India service, Sir Eric said that the number of passengers carried on this route was 2,495 as compared with 1,241 the previous year. This service was operated throughout the year by the new four-engined types. Sir Eric then explained the change of route since January last, when the service to India ceased to run via Cyprus to Galilee and reverted to the former route, Athens-Crete-Alexandria. He said that experience had showed that weather conditions off the Asia Minor coast were very unreliable in winter, and the airports were not all that could be desired. The forecasting of storms also was unreliable, and this caused delays.

He then turned to the Persian Gulf, where since last October the route has run down the Arabian coast. The better security of tenure had enabled them to lay down better facilities and amenities for passengers than had been possible on the Persian coast. The resthouse at Shargah was first class. Sir Eric paid a tribute to the help of the Trucial Chiefs, who were now making an increasing use of the air service themselves.

Turning to the Africa airway, Sir Eric recalled that a whole new fleet (the "Atalanta" class) had been ordered for that service. But it was a remarkable thing that before that fleet had been delivered the passenger traffic between Europe and Central Africa had outgrown the capacity of the new machines, and consequently larger aircraft of the "Hannibal" class were now working as far south as Kenya. Sir Eric commented "To my mind, this striking example of the advantages of fluidity of fleet demonstrates the great value of having the Empire trunk air routes operated under one direction and management." The passenger traffic on that route had increased, and greater frequency of service was under consideration, though the route was the most expensive to operate, largely on account of the high costs of transporting fuel and other material.

Sir Eric then remarked: "On both the India and Africa services the section that appears to be least popular with the passengers is the rail sector between Paris and Brindisi, which, as you know, was adopted owing to the political objection to our service operating from France into Italy along the Mediterranean coast. I am hopeful that the objections, which formerly prevented the Italian Government from giving us permission to operate along this route, have now been removed, and that we may within a short time be able to fly from end to end of our Empire routes."

"It is our belief that, when we can do so, the service will increase in popularity and will gain in speed and convenience, but it will, of course, involve additional cost. Even though we cannot be assured that the additional

cost will be offset by the extra traffic that will be attracted to the service, there can be no doubt that the right course is to eliminate the train sector as soon as it is expedient."

Sir Eric then turned to the air mail question and the matter of insurance. He said: "The mails carried on the whole of our services showed an increase of 28 per cent. over the previous year. The growth of this class of traffic is, as I have mentioned to you on previous occasions, seriously hampered by the policy adopted up to now not only by our own Post Office, but also by other Administrations. I am pleased, however, to say that there are signs—I cannot go further than that—of postal administrations realising that the air mail services are now being accepted by the public as a normal means of conveyance for mails and that the public will soon demand that its first-class correspondence shall not be segregated for special treatment and for special fees."

"The high standard of regularity achieved on the company's operations has not only been maintained, but is still improving."

"Our company's operations have been accorded a high compliment by the insurance world, and their record and reputation stand so high that Lloyd's insurance rate for passengers travelling by our services is now the same per day of travel as that quoted for land and sea transport. As we travel far faster, the rate is, in fact, lower per 1,000 miles by air than otherwise. No other air transport company enjoys similarly favourable rates on the British market."

"The route mileage operated by Imperial Airways today is over 12,500 miles, and by the New Year will be over 14,000 miles."

Dealing with the obsolescence reserve, Sir Eric spoke of possible foreign competition, and remarked: "The possible foreign competition to which I have just referred means, *inter alia*, speed. Speed is of the greatest importance, but there are other just as important elements which, to my mind, have played such a great part in the progress of our company, namely, safety, comfort, and service. These are factors we shall never sacrifice to save a few minutes. We are progressing, step by step, along a path that leads towards independence from subsidies, and sincerely hope that in the present economic position of every country in the world, competition in subsidies among nations will not force us into other ways."

Sir Eric then spoke about the fleet, and said that two new large aircraft, the *Scylla* and the *Syrinx* (Short machines) should be in service in the early spring, and would, he thought, be the most comfortable air liners in the world.

He then described the arrangements with the Indian Government for the service east of Karachi, and also the concordat entered into by Imperial Airways with the Queensland and Northern Territory Aerial Services, Ltd., in order to tender for the Australian contract to operate the Singapore-Darwin-Brisbane section. These arrangements have already been described in FLIGHT.

Regarding feeder services in India, Sir Eric said that they were disappointed that the Government of India had decided to collect more from postal users of their service than they had to pay for its use, in order that they might pay to feeder services a very much higher rate for the carriage of mails than was paid to Imperial Airways.

In Southern Rhodesia they had taken a minority interest in a feeder-line company, of which they were operating managers and technical advisers.

Turning to a possible link with Canada, Sir Eric mentioned the cordial relations established with interests in Canada and Newfoundland, and also with Pan-American Airways. He added: "We hope during next year to be able to establish, in conjunction with and in full co-operation with Pan-American Airways, a service between Bermuda and the United States."

A "Graf Zeppelin" Jubilee

THE flight of the *Graf Zeppelin* to North and South America is outstanding among her prolific achievements. The journey, which entailed her fiftieth ocean crossing, was in the nature of a jubilee celebration, and it was indeed a happy occasion when the ship visited the "Century of Progress" Fair which is being held at Chicago. The itinerary of the trip was very similar to that followed by the *Zeppelin* in May and June, 1930, but instead of Lakehurst, Akron was used as the North American base. Leaving Friedrichshafen on the 14th, she

reached Pernambuco three days later, and after paying a short visit to Rio de Janeiro on the 19th, she returned to Pernambuco the next day. On the North American trip, she reached Florida on the 23rd, and on the following evening arrived at Akron, Ohio. From Akron she flew to Chicago, arriving early on the morning of the 26th for a visit to the great Exhibition being held there. *Graf Zeppelin* left Chicago on the homeward journey on October 28. During her return flight from Chicago the *Graf Zeppelin* was used for a very interesting experiment. Originally it had been planned that on the evening of Sunday or Monday last the airship was to make arrange-

ments to carry out a conversation by radio telephony with the liner *Kap Arkona*, as the two would then be fairly close to each other. On Sunday the experiment fell through on account of bad atmospheric conditions. On Monday evening a fairly successful transmission took place, and was re-transmitted by all the German broadcasting stations, as well as by Amsterdam and Copenhagen. The conversation between the *Graf Zeppelin* and *Kap Arkona* could not be carried out, as the airship had encountered very bad weather conditions and had to make a wide detour, which took her so far from the liner that telephony had insufficient range. Those on board the airship, however, gave a short account of the flight to South America, thence over the Amazon to North America, and from Chicago to her position at the time, some 1,000 miles west of the African coast. It had been hoped that Dr. Eckener would be at the microphone, but the difficulties of navigation kept him very busy elsewhere. The member of the airship's party who did most of the broadcasting paid a glowing tribute to Dr. Eckener's navigation and meteorological knowledge. When the weather reports came in, Dr. Eckener had a very difficult task in weighing up the situation. He made his estimates and chose a certain route. As it turned out, he found the one fair-weather lane between two bad-weather areas, and the *Graf Zeppelin* was flying along that lane at the time of the transmission. A certain amount of "mush," and more particularly wireless telegraphy transmissions, interfered to some extent with the transmission, but at least 75 per cent. of the talk was understandable. It is interesting to note that negotiations for an all-the-year-round Zeppelin service to South America have been concluded between the Brazilian Government and Dr. Eckener. A grant of three million marks, repayable in 30 years, has been made by the Brazilian Government for the building of an airship hangar. The autumn of 1934 is fixed for the inauguration of the service.

Air Service to the Congo

It is reported that an air service between France and the Congo will be established next year.

The Berlin-Rio Service

INTERESTING visitors to Southampton last week were three Dornier "Wal" flying boats (2 B.M.W. VII engines), which are being used on an experimental flight in connection with the projected Berlin-Rio service. Two of the boats landed at Woolston on Thursday after having flown the 650 miles from Travenau, their Baltic base, non-stop. While taxiing, one of the machines was carried by the tide into a floating bridge used for ferry services across the Itchen, and damaged its starboard wing. Spare parts are being sent from Germany. On Friday a third boat arrived, having made the flight in an hour less than its companions, and on Monday, after having been delayed by bad weather, the two undamaged craft left Woolston for Bathurst, British Gambia, flying via Corunna, Cadiz, and Cape Verdes. A fourth machine is expected at Southampton in a few days. The first experimental flights will be between Bathurst and Natal, Brazil, a landing being made in a calm part of the South Atlantic, near the steamer *Westfalen*, which is being used as a "parent" ship. This interesting vessel, with its landing apron, catapult and cranes was described in *FLIGHT* for February 23 this year. The sea-crossing will thus be divided into two sections of roughly 900 miles each, over which distance the "Wals" will be able to carry a payload of some 3,000 lb., at a cruising speed of 100 to 110 m.p.h.

No passengers are being carried on the experimental flights, the crew of each boat consisting of a pilot, navigator, engineer and wireless operator. It is estimated that the 7,000 mile journey between Berlin and Rio could be completed in five days, instead of the three weeks taken by steamer, and that when the service is in regular operation the whole of the Berlin-Rio mail could be carried.

Union Airways, South Africa

A REPORT from South Africa gives some interesting figures regarding the operational record of Union Airways. This company claims that since their inauguration in September, 1929, the safety factor has been as high as 99.96 per cent. The company has carried 99,209 lb. of mail, 4,198 passengers, 104,950 lb. of freight, and has flown 892,000 miles. Figures have been worked out to show the ratio of lb. transported to the subsidy received. The French companies transported 6.01 lb. per £, Imperial Airways 16.26 lb. per £, and Union Airways 46.71 lb. per £. French companies receive a subsidy of 5s. 6d. for every mile flown, Imperial Airways 6s. 2d. and Union Airways 7d. Official overseas returns show that the French companies' proportion of revenue earned to subsidy is 20.83 per cent., Imperial Airways 48.33 per cent. and Union Airways 51.50 per cent.

New Air Lines in U.S.S.R.

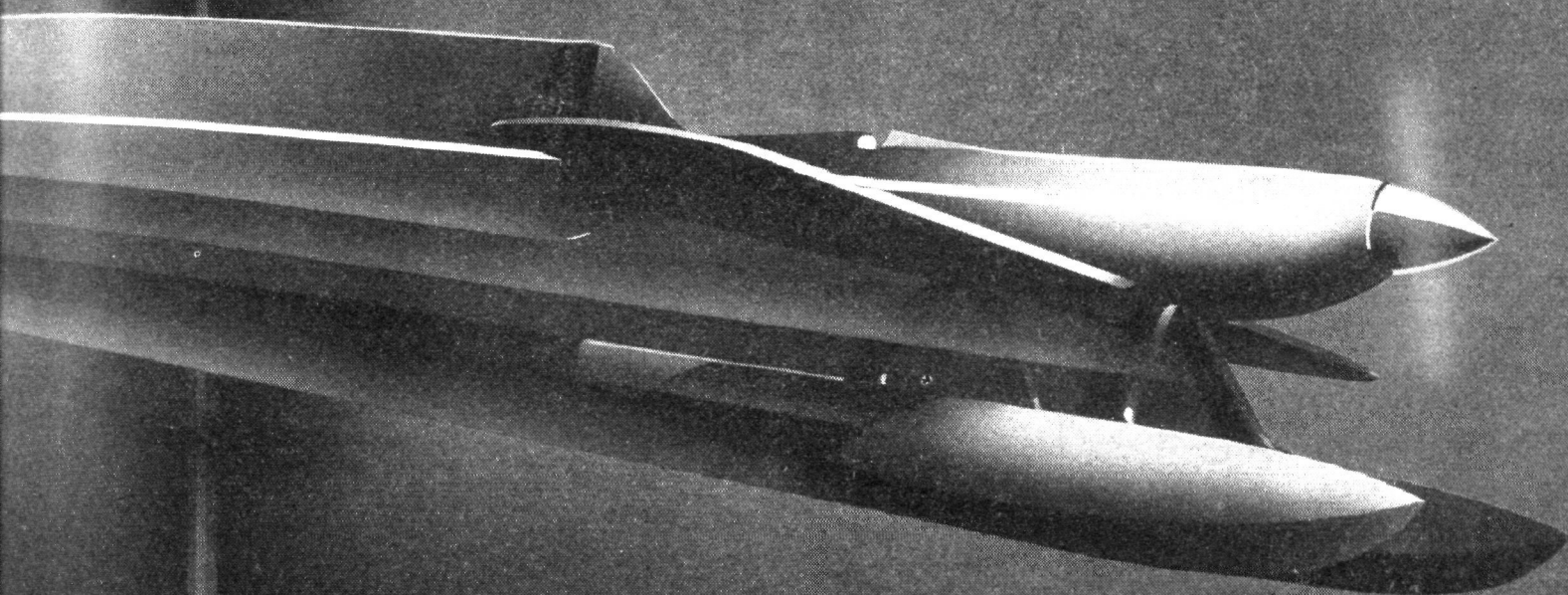
PREPARATIONS are nearly completed for the opening of direct air communications between Tiflis and Ordzhonikidze. The line will go through Vladikavhas and the principal mountain range of the Caucasus. Some of the pilots for this service have already arrived on the spot. Regular air communications for passengers and mail is shortly to be established on the line Tiflis-Erivan. The flight will take 1 hr. 05 min. Investigations are now proceeding for the establishment of an air service between Kutais and Sukhum. Traffic on this line will commence at the beginning of the new year.

Flying on the Continent

MR. C. A. PIKE, of the de Havilland Flying School Club, sends us some interesting details of a flight he recently did from Bucharest. He flew himself out in a "Tiger Moth" and returned by Air-France. The departure from Bucharest was made at 8.25 in the morning in a Wibault "Penhoet." The weather was beautiful, there being a slight following wind. Belgrade was reached in 2 hr. 14 min., an average speed of 128 m.p.h. The next hop to Budapest was made at an average speed of 127 m.p.h.; here more passengers were picked up, and at Prague the full complement of 10 was made up. The total flying time to Paris was 11 hr. 20 min., which represented an average of 121 m.p.h. for the journey. Mr. Pike considers the Wibault to be quite a comfortable machine, but rather noisy and the landing speed high, the whole length of the aerodrome at Belgrade and Bucharest being required, in spite of the fact that the pilot "rumbled in." The same machine was used during the whole trip, but a fresh pilot took over at each landing, and the difference in piloting was very noticeable. There was one unpleasant incident, when the gyro for the artificial horizon caught fire, and the smell and sight of smoke caused a few very unwelcome moments. The inability to obtain food was very unpleasant, there only being time to buy a few biscuits during the whole day. Mr. Pike considers the journey by air a great deal more pleasant than that by rail, which he later experienced.



FOR THE SOUTH ATLANTIC SERVICE : One of the Dornier flying boats arriving at Woolston, Southampton, on October 26, en route for Brazil.



BLERIOT CUP

WON AT 384 M.P.H.
FOR 30 MINUTES USING

WAKEFIELD

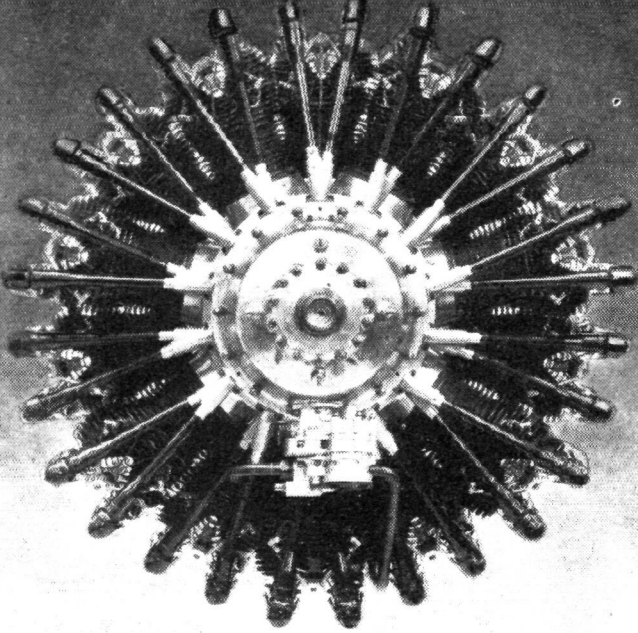
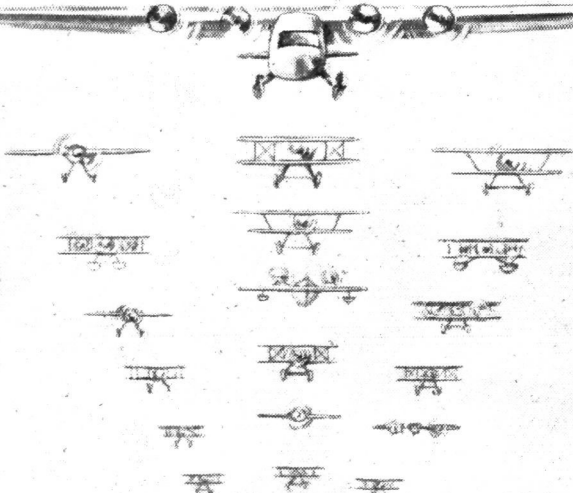
Castrol

MOTOR OIL



To replace, in effect, the Schneider Trophy, which was won outright by Great Britain, the Blériot Cup was presented in 1931 by Monsieur Blériot for the fastest flight over a closed circuit for a period of 30 minutes. 600 Kilometres per hour must be exceeded, and the first pilot to average 1,000 Kilometres per hour will win the Cup outright.

Lieut. Col. Scapinelli, flying the World's Fastest Machine, averaged 619.375 K.P.H. for 30 minutes, between Porto Corsino and Porto Recanati on October 21st, and thus becomes the first holder of the Cup.

SIDDELEY
AIR COOLED AERO ENGINES

FOR ALL TYPES
OF AIRCRAFT.

ARMSTRONG SIDDELEY MOTORS LTD
COVENTRY, ENGLAND.

B.P.330.



SKYBIRDS

CONSTRUCTIVE
MODELS AND
ACCESSORIES

$\frac{1}{72}$ nd
Scale



Showing the NEW RADIO STATION, price 3/-,
with a SKYBIRD AIRPORT background.

● SKYBIRD LEAGUE—full particulars on application.
Illustrated Skybird Book, post free 7d.

For list and address of nearest agent, write:
"SKYBIRDS" (Desk C.),
3, ALDERMANBURY AVENUE, LONDON, E.C.2



Smoke
**PLAYER'S
AIRMAN
MIXTURE**

The finest mixture
at **10^D** per oz

ALSO PLAYER'S 'AIRMEN' NAVY CUT
DE LUXE AT 11^D PER OZ.

PA32

Kindly mention "Flight" when corresponding with advertisers

AN INTERNATIONAL AERO SHOW AT GENEVA

ORGANISED by the Aero Club of Switzerland, an International Aero Exhibition is to be held in Geneva from April 27 to May 6 next year. The exhibition is intended to represent aircraft of the sporting and touring type only, and engines, accessories, etc., relating thereto. Exactly how it will be decided whether a given machine can reasonably be classed as a sporting or touring type is not known, but the regulations state that "The Organising Committee has the right to refuse the admission of any concerns or interests which would not correspond to the purpose of this Show, without the necessity of giving any explanation as to the motives of this decision."

The Exhibition will be held in the *Palais des Expositions*, where an automobile show is held every year. This hall has an area of approximately 8,000 square metres, the ground floor measuring 340 ft. by 230 ft., while there is a large gallery running around all four sides. The exhibits admitted to the show include landplanes, floatplanes and flying boats; aero engines; instruments and accessories; constructional materials (metal, timbers, fabrics, etc.); ground organisation (hangars, beacons, etc.); fuels and oils; instructional equipment; aerial photography; model aeroplanes; air travel; aerial advertising.

Application for stand space should be made to the Organising Committee at Corratier 13, Geneva, before December 31, 1933, from which address forms of application for stand space can be obtained, as well as a set of rules and regulations.

In the meantime, it may be of interest to prospective exhibitors if we give a list of the charges made for stand space. On the ground floor these charges are as follow:— 20 Swiss francs per sq. m. (10.7 sq. ft.) for small stands; 15 Swiss francs per sq. m. for a minimum of 20 sq. m. (215 sq. ft.); 10 Swiss francs per sq. m. for a minimum of 50 sq. m. (538 sq. ft.); 8 Swiss francs per sq. m. for a minimum of 75 sq. m. (807 sq. ft.). In the gallery there is a flat rate of 6 Swiss francs per sq. in. All wall space is charged at 20 Swiss francs per sq. m.

Stands "will be allocated by the Organising Committee, either by drawing lots, or by taking into consideration the methodical arrangement of the whole. Decisions will be without appeal. No claim or objection will be considered."

Exhibitors are responsible for the arrangement and decorations of their stands, but their plans should be approved by the Organising Committee. An official catalogue will be published, and exhibitors should send material for this catalogue to the Organising Committee not later than December 31, 1933.

Aircraft constructors who wish to have demonstration machines at the Geneva aerodrome in addition to those exhibited in the show will be interested to know that housing is free up to the hangar space available. During the period of the exhibition no landing fees will be charged for exhibitors' machines. Aeroplanes of the same type as exhibited in the show will, if they belong to exhibitors, be fuelled free of charge for demonstration flights, etc.



Lord Wakefield and Aircraft Insurance

THE British Aviation Insurance Co. announces that Lord Wakefield of Hythe has been appointed as president of the company. Both his lordship and the company may be congratulated on this appointment. Lord Wakefield has risen to his present eminence through his sound business qualities, and these qualities must be of value to insurance, especially in its most novel form. Lord Wakefield has also throughout his career determined to help on the cause of flying, being convinced that it will be a good thing for the country and for the world. His influence with the B.A.I.C. is bound to be in the direction of encouraging the growth of flying in every way that

sound business principles permit. Nothing, perhaps, can help this cause more than a sympathetic, though businesslike, attitude on the part of the insurance authorities.

We may take this opportunity of referring with gratitude to all the B.A.I.C. and its predecessor, the B.A.I.G., have done in the past to help on the cause. For five years at least they were the only body which would deal sympathetically and satisfactorily with aircraft insurance—and without that insurance where would civil flying be to-day? Now there are others in the field, but the B.A.I.C. still holds the respect and deserves the gratitude of all owners of aircraft. Under the new president, the good work of the B.A.I.C. will surely be continued and expanded.



BEAUTIFUL BUDAPEST : An aerial view of the City Park, with its lake, famous in winter for its skating.

From the Clubs.

COMFORT DIGNITY AND PEACE

ON Saturday, October 28, Messrs. E. C. Simon and J. W. Buckley held a *Concours d'Elegance* for aeroplanes and motor cars at Lamport Hall. That statement may, in itself, not appear particularly significant, but it is when the traditions and history of the Hall itself are examined that the full importance of it becomes apparent.

All over England the great, and even lesser, country seats are being sold for various purposes, as their owners find the present-day taxation makes it impossible for them to continue maintaining these places. This is a lamentable state of affairs and one which for sheer idiocy of taxation methods, can be compared to the death duties which are slowly, but surely, undermining the basic constitution of England. However, though the two evils are closely related, it is with the passing of those pillars of our National Life, those family heritages upon which our stock has been built, those ancient houses wherein the mothers of our great families have bred sons who have made the word Englishman synonymous with fair play and a straightforward dogged nature throughout the world, that we are concerned.

The order of things is now changing and the modern tendency is to set breeding as one of the attributes of little or no account. We should have thought that the examples of Russia and America, both of which countries, despite their avowed feelings, are definitely doing their best to foster an aristocracy among their peoples were sufficient. Need we go through their trials and tribulations before we, too, realise the importance of maintaining our own aristocracy?

Some of these country places have, like Lamport Hall, been acquired by syndicates, who have turned them into Country Clubs. Lamport Hall, which is in the heart of the Pytchley country, is ideal for hunting, and has ample stabling facilities for people staying there. For over 350 years it has been the seat of the Isham family, and Mr. Gyles Isham, the present heir to the baronetcy, is the President of the Club.

The arrangements on Saturday were by way of introducing the Club to both flying and motoring people. The weather was execrable, almost prohibiting flying. Never-



TRULY RURAL : The village church at Lamport actually adjoins the Hall, and is a fine example of its period.

(FLIGHT Photo.)

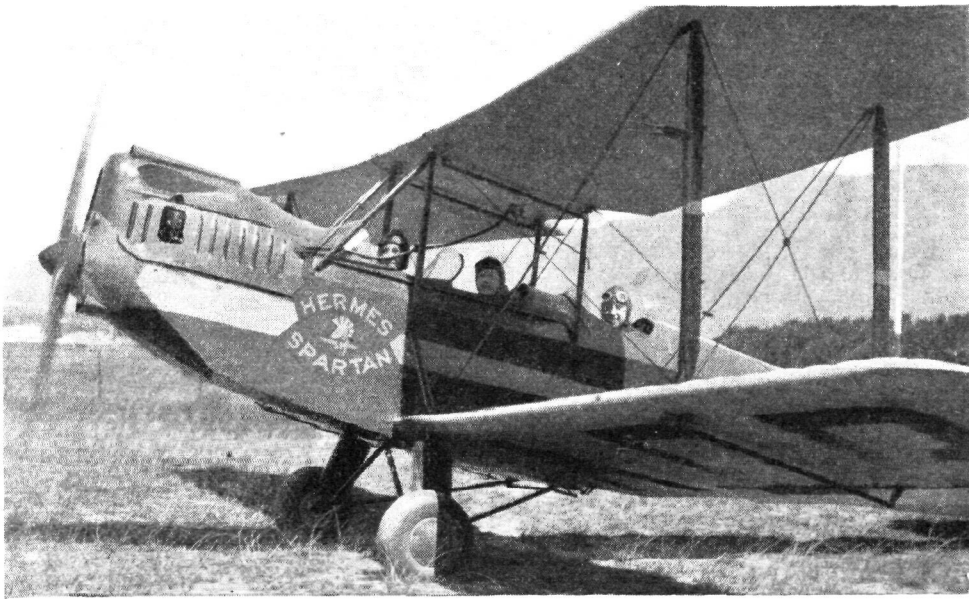
theless, three pilots arrived from away. Flt. Lt. G. N. Stringer, the Leicestershire Aero Club instructor, came in one of the Club's "Moths" (Gipsy I); Mrs. Cleaver, in her "Gull," was flown from Heston by Capt. E. Percival; and Mr. S. P. Symington flew his "Swift" (Pobjoy) from Leicester. Other entries were: Mr. P. Tyzack with his "Cadet" (Genet) and Capt. G. Shaw with his "Moth" (Gipsy I), both of these machines being kept at Sywell. A Cup, awarded by Lord Wakefield for the event, was given to Capt. Shaw who, incidentally, is the Chairman of the Northampton Flying Club. His machine, flown, and chiefly looked after by Mrs. Shaw, started life in 1929, and had done some 500 hours' flying, but it was, nevertheless in unusually good condition. The runner-up for the Cup was the Leicestershire Club "Moth." *Concours d'Elegance* is rather a misnomer for this event, as it is impossible to judge aeroplanes on the usual *Concours d'Elegance* rules unless they can be divided into classes of similar design. Cabin machines cannot, for example, be fairly compared to single-seater open machines. The event was, therefore, judged by taking into account the age, amount of flying done and condition of the machine. Lord Wakefield has presented the Lamport Hall Club with a Cup which will be competed for at the opening of the newly-constituted Northampton Flying Club next spring, when it is hoped that the attendance will be commensurate with the prize.

THE LANCASHIRE AERO CLUB

During the past month 23 new flying members joined the Club and nine ordinary members. First solos were done by Mrs. Templeton, Messrs. Stone, Belgrave, Watkins, Robinson, Green, and Horrox; aerobatic category additions, Messrs. Pratt, Neale, and Cohen. On Monday, October 9, the Pemberton and Rodman Landing Competitions were held at Woodford, and won by Messrs. A. Collinge and O. Gibson. The Club has now a very varied collection of aircraft, including an "Avian," a sports "Avian," an Avro "Cadet," and a Desoutter monoplane. Facilities are available for instruction in compass flying, cross-country flying, aerobatics, and blind flying. Under the British Red Cross Society classes will be held again this winter for instruction in first aid; members who are interested should apply to Mr. B. A. G. Meades, or Mr. Colin Wilson. The Annual Ball will be held on Friday, December 1, and it is hoped that all members will make an effort to attend and bring their friends. Applications for tickets should be made to Mr. R. H. Byron, Dr. W. Templeton, Mr. J. C. Sellars, Miss



TYPICALLY ENGLISH : Lamport Hall is only 9 miles from Northampton and 8 from Kettering; it is thus an ideal centre for hunting. Its proximity to Sywell Aerodrome makes it easy to get at by air. Those who circle the Hall twice will be fetched from the aerodrome. As a club it is peaceful and attractive, because its gardens and historical and typically English interior make a rare and satisfying combination. (FLIGHT Photo.)



FROM SOUTH AFRICA: The three-seater Spartan ("Hermes II"), with Messrs. Duk and Store aboard, of Aero Services (Pty.), Ltd., Wynberg, South Africa. This machine was originally taken out to South Africa by Mr. John Trantum, and after a period of hard work was sold to its present owners, who have since had consistent and good service from it.

Goy, the Secretary, or the Chief Instructor. On Saturday, November 4, there will be a party at Woodford, at which there will be dancing, and later a display of fireworks. On Saturday, November 18, there will be held, at Barton, a competition and display of model aircraft of all sizes and kinds. The competition will start at 3.30, and there will be two classes, Home Made and Children. The competition is open to both members and their children.

On Sunday, October 29, a formation of five machines left Woodford on a tour of Lancashire, ending up with a visit to Barton Aerodrome. Recent visitors to Woodford included H.E. Affi Pasha, the Egyptian Ambassador, and Mr. Keston, from the Finnish Flying Club. A display of soaring was given on Sunday by a glider which had been towed into the air; it managed to sit under an ominous looking cloud for 10 min.

MISR-AIRWORK NEWS

Over 2,000 people were present at a successful display given on October 15 by students of the Misr-Airwork Flying School in honour of one of their number, Mlle. Lutfia el Nadi, Egypt's first lady pilot, who took her "A" licence with Misr-Airwork very recently. Much favourable comment was excited by her display of aerobatics, which was the chief event of the afternoon. Among the distinguished guests at the display were Talaat Harb

Pasha, President of the Banque Misr; Mohammed Sidky Pasha, the Governor of Cairo; and Sir Quintin Brand, the Director-General of Aviation in Egypt.

A "Dragon" was recently sent to Suez by Misr-Airwork to fetch four passengers who wished to visit Cairo during their ship's passage through the canal. On the same day, a "Dragon" was chartered by officers of the 14/20th Hussars and Coldstream Guards for a bathing party at Ismailia.

To celebrate the anniversary of the accession to the throne of the King of Egypt, the Alexandrian Flying Club held a display at Dekhela aerodrome on October 9. The proceedings opened with a Spot Landing Competition, which was won by Mr. Bianchi. Other events included a Balloon Bursting Competition, an exhibition of formation flying by three pilots of the Egyptian Army Air Force, led by Bimbashi J. Cottle, M.B.E., D.F.C., a display of aerobatics by Aly Bey Yehia, another display of aerobatics by Mr. Mohamed Sidky, and a crazy

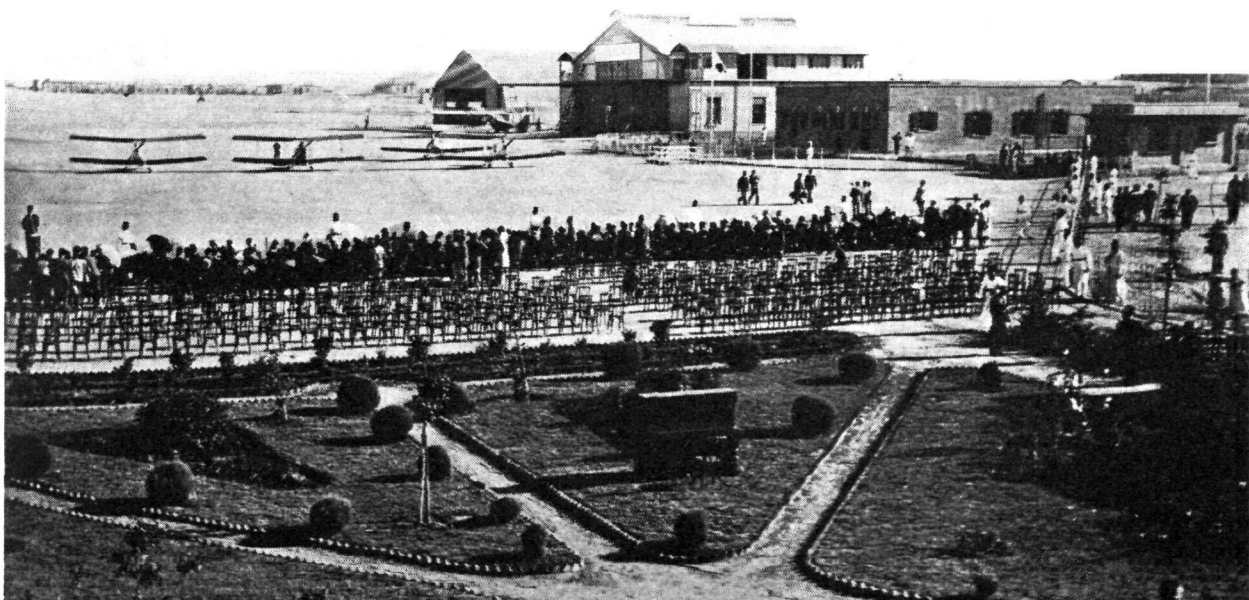
flying display by Mr. Parsons, of the Alexandrian Flying Club. During the display joy-riding was carried on by a D.H. "Dragon" of Misr-Airwork.

BRISTOL AND WESSEX AEROPLANE CLUB

Instructional flying at Bristol has been almost completely suspended during the past week owing to high winds, but a certain amount of solo flying has been carried out by qualified pilots. The first dance of the season was held on Friday, October 27, at the Grand Spa Hotel, Clifton. Mr. E. M. H. Slade has been acting as assistant instructor at Bristol during the summer; he left the Club last week on completion of his engagement. He leaves with the good wishes of everybody at the Bristol Airport.

NORFOLK AND NORWICH AERO CLUB

During the week Mr. J. C. Smith, from the Nelson Barracks, obtained his licence. Instruction was given to Messrs. G. R. F. Clarke, R. T. Katton-Crammer and P. Britton. Solo flights were done by Messrs. A. R. Kirkby, E. V. Goodhill, S. Hansel, H. C. Stringer, J. C. Smith, J. B. Purefoy, Capt. J. D. Paul and Miss W. F. Hudd. The last of the tickets for the annual ball has been sold. Among those who have promised to attend are the Lord Mayor, who is President of the Club, and the Lady



Misr Airwork Flying School Display, Almaza Airport, Cairo, October 15. Aircraft drawn up at commencement of events. Note the Club garden in foreground.

Mayoress, the Sheriff of Norfolk and Mrs. Hanly, and the High Sheriff of Norfolk.

READING AERO CLUB

Members under instruction are Mrs. MacDonald, Count Hamilton, Baron Akerhielm, Messrs. Shamah, Holleman, Ruddle, Hubbard, James, Cook, Boyd, Dash, Parkin, Borchgrave, Jopling, Debenham and Evans. First solos were done by Mr. Holleman, who passed his "A" licence tests, and Mr. Shamah. Mr. E. D. A. Brigg left for Heston on Sunday, October 29, from where he intended to make a start on a flight to Nairobi. A Miles "Hawk" has been shipped to Sourabaya.

NORTHAMPTONSHIRE AERO CLUB

As the weather has not been favourable for flying, the Club has turned its attention to ground organisation. Every morning it has been necessary to remove from the aerodrome large quantities of mushrooms, not only for the sake of aircraft landing, but also for the sake of Mr. Harold Brown's cows; incidentally, these cows, which graze on the aerodrome from morning to night, have made Sywell a most exciting aerodrome on which to taxi. The site for the new clubhouse has been pegged out and the Secretary of the Sywell Aerodrome Co. says it will be up by the New Year. (Members of the Club want to know which New Year.) The annual dance will be held at the George Hotel, Kettering, on Friday, November 3, and already there has been a great demand for tickets.

BROOKLANDS SCHOOL OF FLYING

Weather conditions somewhat hampered flying during the week, with the result that the total only amounted to 43 hr. dual and 35 hr. solo. Cross-country flights were carried out to Lympne, Manston, Bristol and Cowes. New members for the week were Messrs. Reddy and Willson, and first solos were done by Mrs. Graham and Mr. Morris, also Miss Farmiloe passed tests for an "A" licence. Visitors during the week included Messrs. Whitney Straight, Nuvolari and Wing Com. Probyn. The Leicester Aero Club's "Puss Moth" has just been turned out of the workshops with a new C. of A.; incidentally, the workshops are very busy nowadays, even working overtime when necessary. It is hoped that the Aero Club dance and firework display, on Saturday, November 4, will be a great success.

THE LINCOLNSHIRE AERO CLUB

Flying times for the week totalled 4 hr. 20 min. dual, and 1 hr. 10 min. solo. New pupils were Messrs. Jarvis, Parkinson and Dobson. On Thursday, October 26, a most successful and well-attended "Ridiculous" party was held, dancing continuing until 1 a.m. The prize for the most ridiculous costume went to Mr. Dolley, the National Benzole representative. Cross country flights were done to Brough and Hedon, and the Rugby Union F.C. were flown to Hull to play the Ionians. A Bonfire and "Tramps" party will be held on Friday, November 3, and the second Annual Dance will be held on Thursday, November 23, at the Gaiety, Grimsby.

BERLIN GLIDING

A number of German gliding experts, among whom was Herr Hirth, recently made flights over Berlin to determine whether dangerous downward currents existed regularly at certain points, and to study conditions generally in changing winds and temperature. The gliders were equipped with ordinary aeroplane instruments, and a "variometer" which shows whether the glider is ascending or descending, and also the speed of such movement in metres a second. All the flights started from Tempelhof Airport, the gliders being towed up to a height of about 500 ft. by aeroplane. On one flight Herr Hirth reached a height of nearly 8,000 ft. Peter Riedel, who recently flew in a glider to the French frontier, and Heinz Dittmar, who built his own glider on the Wasserkuppe, were flying together under the clouds, one

day, when they lost their up winds, Dittmar just scraped into Tempelhof, but Riedel was forced to land in one of the City parks. Hanna Reitsch, a young pupil of Herr Hirth, flying his glider "Uncle Otto," amazed onlookers by a series of loops and sharp turns over the City.

MAIDSTONE AERO CLUB

Maidstone Aero Club held their first dance of the season on Saturday, October 28, which was a great success. The next monthly "At Home" will be held on Sunday, November 5. The School of Flying are now engaged in regular flying and the three machines have been kept busy.

CARDIFF AERO CLUB

The club-house has now been moved to its new site near to the hangar; electric lighting and a more efficient heating apparatus has been installed, and several other alterations have been made which should add greatly to the comfort of members during the winter months. During the last fortnight the flying times totalled 14 hr. 30 min. dual, 13 hr. 10 min. solo, and 2 hr. tests.

LONDON AEROPLANE CLUB

Owing to the bad weather, only 15 hr. were flown during the past week. Mr. E. W. Benson did a first solo. Among new members the Club have pleasure in welcoming Mr. and Mrs. Hargreaves.

HANWORTH (N.F.S.)

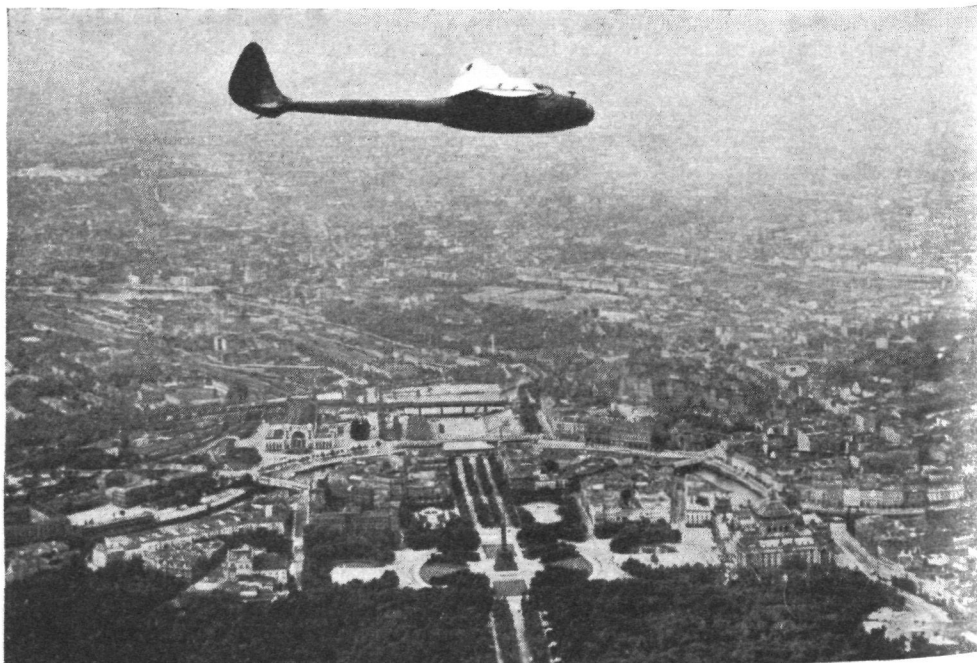
Flying has been greatly restricted owing to the bad weather, and only 14 hr. flying has been done. Mr. R. Wheeler took his "A" licence and Lt. Everett and Mr. Back took dual instruction. Cross-country flights have been done by Mr. Bramson to the Isle of Wight, by Mr. Kirwan, who set out for Bristol, but had to return owing to bad weather, and by Maj. Osmaston, who flew to Sussex. On Saturday, October 21, some lady members flew over to Reading for the Ladies' Flying Meeting. On Saturday, November 4, the Lagonda Car Club are holding a gymkhana and tea dance at Hanworth, starting at 2.30 p.m. The second dinner and dance of the season will be held on Friday, November 10.

THE YORKSHIRE AEROPLANE CLUB

About 21 hr. were flown during the week on Club aircraft and privately-owned machines. Mr. L. B. Patrick, the *Daily Express* scholar, did a first solo on October 22. Cross-country flights have been done to Thornaby-on-Tees, Reading, London, and Ireland.

SOUTHEND FLYING CLUB

The Southend Flying Club's Supper Ball at the Queen's, Westcliff, on Friday, October 27, was a great success, there being a good attendance of members and friends. Councillor G. E. Weber, the Chairman, introduced the principal guest, Alderman Tweedy Smith, the Mayor of Southend-on-Sea. The Mayor complimented the Club on the progress made during the year, and the pioneer work it had done for aviation in the borough. He cited the case of Birmingham, who, through delaying the deci-

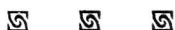


GLIDER EXPERIMENTS OVER BERLIN: Peter Riedel in the "Fafnir" sailplane soaring over Berlin.

sion to have a Municipal Airport, had eventually been compelled to go nine miles outside the borough for a suitable site. He assured the gathering that the Town Council had the question of the early establishment of a Municipal Airport for Southend well in hand. A committee is at present investigating three possible sites in or near the borough, and he hoped that before long a definite announcement would be made. Meanwhile, the Southend Flying Club were providing good facilities for flying; a good deal of air taxi work was being done, and the Club were laying the foundation for an air service for Southend.

CINQUE PORTS FLYING CLUB

The activity at Lympne has increased since the arrival of the Egyptian Squadron, who are undergoing training on Avro "Trainers" fitted with "Cheetah" engines and special equipment. Sqd. Ldr. Tate and Flt. Lt. Webster are in charge. Mr. and Mrs. W. E. Davis, Messrs. K. Waller, and Harraway are going out to Cairo for the International Meeting in December. G-EBTD is undergoing its annual C. of A. at the Club. The fact that, apart from



Fareham Aerodrome

THE Fareham Town Council are considering the possibility of laying out a municipal aerodrome, or, at any rate, reserving a site. The subject was on the agenda of their last meeting. This is very interesting, and shows praiseworthy initiative, for Fareham is by no means a large town. As a matter of fact, an aerodrome might prove very useful to Fareham, for, although it is only 70 miles from the centre of London, it takes between two and a half and three hr. to get there by train.

A Flying Printing Works?

RUSSIAN propaganda is to call in all the latest aids to efficiency if one can believe rumours from Russia to the effect that a giant eight-engined monoplane is in course of construction. This new machine, which will be christened the *Maxim Gorki*, is reported to have a designed gross weight of 40 tons, and a wing span between 60 and 70 metres (197-230 ft.). Eight engines of 800 h.p. each are to be fitted. The wind tunnel, etc., tests are reported to have been carried out by the Aero-Hydrodynamic Institute of Moscow. The *Maxim Gorki* is to be used for propaganda purposes, and it is even reported that a printing press will be carried on board so that propaganda based on the latest items of news received on board by wireless can be printed during flight and then dropped on the villages over which the machine is flying.

The Kadenacy Cycle

SOME extremely interesting experiments have recently been made in France with a new two-stroke system, named after its inventor, the Kadenacy Cycle. Very briefly explained, M. Kadenacy's theory is that in an internal combustion engine the behaviour of the exhaust gases has been imperfectly understood. He maintains that as soon as the exhaust valve opens there is a sudden and extremely violent outrush of the gases, so violent in fact that it leaves the cylinder momentarily empty, even to the extent of approaching a perfect vacuum. In all engines built hitherto, he maintains, what happens is that actually the exhaust gases oscillate violently to and fro, leaving and re-entering the cylinder. By an ingenious arrangement of his exhaust valve ports he has been able to prevent this, and to utilise the vacuum in the cylinder for drawing in a full charge of fresh mixture, which presumably rushes in with the same violence as that with which the exhaust gases leave the cylinder. A Junkers single-cylinder heavy-oil opposed piston engine was converted to utilise the Kadenacy cycle, and instead of developing 11 b.h.p. at 1,400 r.p.m. it developed 20.4 b.h.p. at 1,500 r.p.m. and 19 b.h.p. at 1,400 r.p.m. At the same time, the specific fuel consumption fell from 210 grammes per h.p. per hour (0.462 lb./h.p./hr.) to 170 grammes (0.374 lb./h.p./hr.). The engine ran for 25 hours under official supervision.

The Hare and the Tortoise

A PARAGRAPH which must have given yachtsmen and "marine motorists" great delight was published in last week's issue of FLIGHT. It stated that Mr. Sopwith was to make an attempt to wrest the Harmsworth Trophy from America. As the craft which Mr. Sopwith is having built is a steel sailing yacht, while the Harmsworth Trophy is held by Gar Wood with a high-speed motor boat, the spectacle of Mr. Sopwith racing Gar Wood should draw a large "gate." Some years ago Mr. Oswald Short and

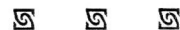
replacing a few hinge pins, there is practically nothing to be done speaks well for the work of the ground staff. A new course has come to the Small Arms School, and Messrs. Vernon and Seymour-Evans have lost no time in joining the Club. Flying times have been much upset by poor weather.

A NEW INDIAN FLYING CLUB

A new flying club has been formed in India, called the Central Provinces and Berar Flying Club, Ltd. It has been formed with the intention of providing a centre of information and advice on all matters pertaining to aviation, and to instruct members in the art of flying.

A FLYING LICENCE IN A MONTH

A young Cambridge undergraduate has just succeeded in gaining a pilot's "A" licence in a month. During the Long Vacation he returned to his home in South Africa and joined the Rand Flying Club, obtaining his "A" licence before returning to the university. It is his intention to join the Cambridge University Air Squadron.



his friend Mr. Donald Maxwell, the artist, were to have had a race to Switzerland through inland waterways. If we remember right, Mr. Maxwell was shipwrecked shortly after leaving home and the race was cancelled. Mr. Maxwell used his little sailing craft and Mr. Short was to have used a high-speed motor boat, and was to have given Mr. Maxwell a fortnight's start. The challenge which Mr. Sopwith is making is, of course, for the *America Cup*, which the late Sir Thomas Lipton tried so valiantly, but vainly, to "lift." Everyone in British aviation as well as yachting circles will wish Mr. Sopwith success.

Lloyd's Register and the British Corporation

THE annual report of Lloyd's Register of Shipping for the year ended June 30, 1933, has just come to hand. We are naturally most interested with the activities of the Joint Aviation Advisory Committee of Lloyd's Register and the British Corporation Register, and it is important to notice that while the shipping activities of Lloyd's continue to suffer from depression, the activities of the aircraft inspection side continue to grow. Up to the end of June last 453 aircraft were inspected for renewal of C. of A. and 183 for damage; this indicates an increase of 70 and 55 machines in each class, respectively, when compared with the previous twelve months. This is largely due to the Air Ministry delegating to the Joint Societies surveys for renewal of C. of A. of all privately-owned and *bona fide* club machines and also aircraft used by the R.A.F. Reserve training schools. Airwork, Ltd., have now provided facilities for a resident surveyor at Heston, and Mr. W. E. Packman has been appointed to this first exclusive outpost of the Joint Societies. Mr. Maurice E. Denny has succeeded Mr. Arthur L. Struge as Chairman of the Advisory Committee for the ensuing year, Messrs. L. C. Harris and A. J. Whittall replace Messrs. I. C. Geddes and P. Hargreaves, and Mr. Charles Hendry, Vice-Chairman of the British Aviation Insurance Co., Ltd., has been elected in place of Sir Robert McLean.

Diesel-Engined Car Record Speeds

DRIVING an A.E.C. Diesel-engined racing car on Brooklands track last Friday, October 27, Capt. G. E. T. Eyston beat the previous best speed for this type of car by several miles per hr.

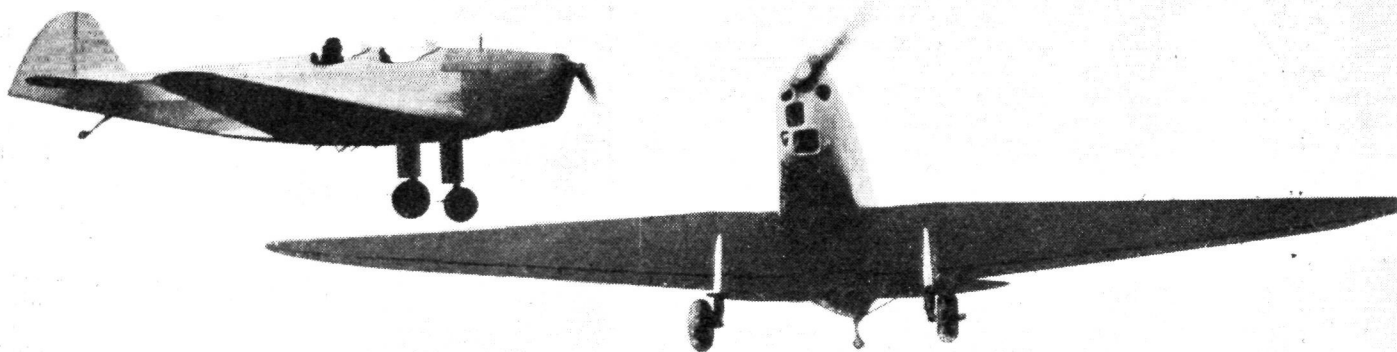
The car he used was a saloon, built with as little air resistance as possible and seating four people. The engine is a standard A.E.C. heavy-oil bus engine, with a bore and stroke of 115 mm. and 142 mm. respectively, giving a capacity of 8.85 litres and developing 130 b.h.p. It has a total weight, including auxiliaries, of 1,414 lb., and although the car was driven at over 100 m.p.h. it ran so cool that Castrol AA was used as the lubricant, despite the fact that this oil is the lightest of the standard motoring grades made by the Wakefield Co. The car is also interesting on account of its economy. Even at 100 m.p.h. the fuel consumption is somewhat better than 20 m.p.g. It should also be noted that fuel used, costs at present only 5½d. per gallon.

The speeds and times attained were:—

FLYING MILE (fastest mean time for both directions).—Time: 35.30 sec. Speed: 101.983 m.p.h.

FLYING KILOMETRE (fastest mean time for both directions).—Time: 21.333 sec. Speed: 104.86 m.p.h.

FASTEST RUN MADE DURING TEST (kilo, in reverse direction).—Time: 20.975 sec. Speed: 106.647 m.p.h.



Side and front views of the new "Fiesler 5" low-wing monoplane in flight.

THE "FIESLER 5" MONOPLANE

HERR GERHARD FIESLER, who is well known in England for his aerobatics at low altitudes, and who last year acquired control of the firm of Kegel-Flugzeugbau of Kassel, has recently produced a new light aeroplane. Named the "Fiesler 5," it is a two-seater cantilever low-wing monoplane fitted with a 60-h.p. Hirth HM 60 engine. A 78-h.p. Hirth HM 6R engine can also be fitted if desired, without any structural alterations.

The wings are trapezoidal in shape and taper outwards, the leading edge sloping backwards while the trailing edge is straight. The folding wings, of wooden construction, have two double T-section spars, and are covered up to the rear spar with plywood to obtain sufficient torsional strength. Two slotted flaps are fitted to the trailing edge of each plane, the outer of which serves as an aileron. These flaps can be locked in any position from the cockpit.

The undercarriage comprises two vertical legs placed well forward of the centre of gravity, and fitted with rubber and oleo shock absorbers. The low-pressure balloon wheels run in forks, and brakes are fitted.

The engine housing is partitioned off from the rest of the fuselage by a fireproof bulkhead behind which are the aluminium fuel and oil tanks, which hold sufficient fuel for 370 miles.

The joystick is mounted on ball bearings and the control surfaces operated by cables and push rods. The elevators consist of a surface of wood with plywood covering and are adjustable from the cockpit. The tail is braced to the lower edge of the fuselage and connected to the steel tube tail fin by cables. All control surfaces are fitted with ball bearings.

It is claimed that this little machine is very manoeuvrable,

comes out of a spin very easily, and can be changed from a right-hand spin to a left-hand spin by use of the rudder bar alone.

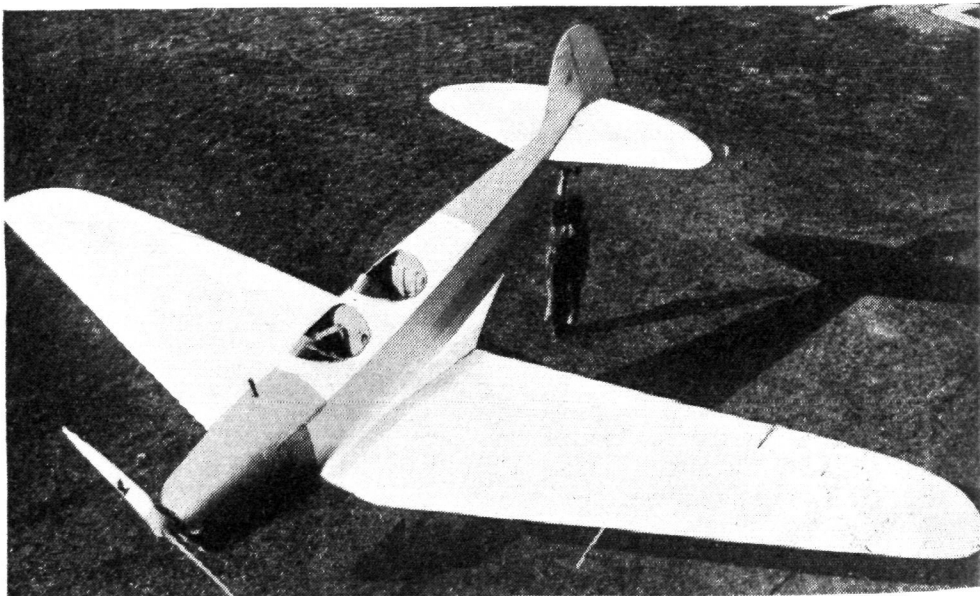
We are indebted to *Shell Aviation News* for the details and illustrations of this machine.

The characteristics of the "Fiesler 5" are:—

Span, 32.8 ft.; overall length, 21.6 ft.; wing area, 146 sq. ft.; weight empty, 750 lb.; disposable load, 595 lb.; weight loaded, 1,345 lb.; wing loading, 9.2 lb. a sq. ft.

Performance (with Hirth H.M. 60 Engine): Fuel consumption, 3.84 gals. per hour; oil consumption, 19 gals. per hour; power loading, 19.2 lb. per h.p.; max. speed, 118 m.p.h.; landing speed, 40 m.p.h.; climb to 3,280 ft., 5.5 min.; service ceiling, 15,420 ft.; range, 373 miles.

With Hirth H.M. 60R Engine: Maximum speed, 130 m.p.h.; landing speed, 40 m.p.h.; climb to 3,280 ft., 4.8 min.; service ceiling, 16,730 ft.; range, 373 miles.



Another view, from above, of the "Fiesler 5" monoplane. It is fitted with a 60-h.p. H.M. 60 engine.



The Master of Sempill's Accident

IT is with much regret that FLIGHT has to record that the Master of Sempill has received severe injuries as the result of a motor accident in Chicago. The Master of Sempill was doing a tour in the *Graf Zeppelin*, and was actually driving back to the municipal airport, whence he was going to fly and rejoin the airship at Akron, when the accident occurred. The car, a special streamlined three-wheeler, was being driven by Mr. F. C. Turner, with Mr. Dollfuss also as passenger. As we go to Press we have received a very re-assuring report of the Master of

Sempill, it being even hoped that he will be practically restored to full health in 3 or 4 weeks' time. Fortunately there is no facial disfigurement, the main injury being a fracture of the bone of the left temple. This, however, is not open and quite clean, and moreover there is no pressure upon the brain, whilst Dr. Sawyer, of Chicago, considers there are no internal injuries and no complications to overcome. With our personal knowledge and appreciation of the Master's marvellous recuperative powers and indefatigable energy, we confidently look forward to being able to welcome him back amongst his army of friends before the year is closed.

Airport News.

CROYDON

Monday, October 30.

A FEW years ago a spell of wet, windy, or foggy weather meant a sharp decline in passenger bookings. Prospective air travellers judged flying weather, usually erroneously, by looking out of the window in London and deciding not to fly if the prospect was damp and depressing. They forgot that there might be blue sky at the other end of the air journey and that they were not expert judges of flying weather.

During last week passenger bookings have shown that the air companies have changed all that. Imperial Airways, on a day which could only be described as vile, were full up in the early afternoon for both morning and afternoon services to Paris for the following day. The K.L.M. Croydon manager informs me that he has never had such full loads of passengers before in October, and other companies tell the same tale. The air-travelling public has learned to trust to the companies about air travel.

Air-France has had a busy week. One machine from Croydon carried 860 kg. of motor-car parts, and amongst an assortment of passengers the names of Richard Tauber, Josephine Baker, Jeff Dickson, and the great dress designer Worth are worthy of passing comment. There was also an Air-France passenger for Beyrouth.

On Sunday, by special permission of the local Council, an Association football match was staged at the Airport between Imperial Airways, London, and Imperial Airways, the Airport. The home team was one short for the first quarter of an hour, owing, I am informed, to one of their crack players being held up by a Girl Guides' procession. This was offset by the fact that Imperial, Croydon, was captained by Jack Little, ex-captain of the Crystal Palace and now of the hangar staff. Anyway, the Airport people won 4-2, the goals being scored for the home team by Morton, Noyes, and Carroll, the latter having two to his credit. Mr. Thurman, Station Superintendent, Victoria, put up a fine defence for the visitors in goal.

It is not generally known that a silver cup exists at the Airport of Croydon, given years ago by D. Napier & Sons, to be played for by companies and departments at Croydon Airport. It was won some years ago by H.M. Customs, whose possession of it has not since been challenged—*verb. sap.*

Mr. M. Brunton, in partnership with Mr. F. Hicks-

Arnold, has founded a company called Croydon Air Services, aircraft engineers and consultants, with premises on the Waddon Factory Estate. The company will execute overhauls and repairs and give free storage in winter for folding-wing machines which they have booked for C. of A. overhaul. During the next seven months, I am told, 34 machines have been booked for C. of A. overhaul or other repair and overhaul work.

Sabena, like the majority of companies, have now started to give passengers the opportunity of sending a radiogram whilst in flight. So far as concerns wiring back to friends in this country, this can only be done by wireless to one of the foreign stations and relayed to England by land line. The Air Ministry authorities here hold, rightly, I think, that the radio is for messages to do with the air services, and should not be burdened with private messages.

Since Air-France came into being, freight has reached Croydon by that company's aeroplanes from five continents, and the bulk of freight carried has greatly increased. Amongst curious freights of Air-France are regular consignments of leeches for medicinal purposes. It is said that Air Union had the peculiar distinction some time back of carrying from Paris the first black shirt ordered from a French firm by Sir Oswald Mosley, actuated, no doubt, by patriotic motives which are not easy for the layman to comprehend.

One of the private owners who visited the Airport during the week was Mr. van den Heuvel, piloted by Mr. de Mul, a Dutch flying instructor. Mr. van den Heuvel flew the machine back to Holland alone. It was a Pobjoy-motored "Pander" high-wing monoplane, with very clean lines and folding wings. Incidentally, this gentleman was one of the first I have seen wearing the new Airvelope life-saving waistcoat, of which Brian Lewis & Co., Ltd., have the sole agency in this country.

An interesting passenger last week by "Imperial" was ex-Mayor "Jimmy" Walker, who travelled to Paris with his wife last Thursday. Prince Christian of Hesse, Lord Glenconner, Capt. "Freddie" Guest, Lord Melchett, and Lady Louis Mountbatten also travelled by the British line. It takes all sorts to make a world, especially at an airport. In the old days names like these meant "complimentary tickets," but I dare wager the price of an air ticket to Paris that all the above passengers paid full fare.

A. VIATOR.

FROM HESTON.

THE Chief Instructor of the Johannesburg Flying Club, Mr. G. D. B. Williams, who flew his own "Moth" home last June, is flying out a new "Dragon" for the directors of the South African branch of the steel firm, Stewarts and Lloyds, Ltd. Mr. Williams and his two passengers spent two nights at the Airport Hotel, waiting for a favourable weather report, and left early on Thursday morning. The journey is expected to take about ten days.

A demonstration of a new type of parachute flare, manufactured by the Irvin Air Chute Company, will be given at Heston by Brian Lewis & Co., Ltd., weather permitting, on November 8, at 7 p.m., and will be followed by a dinner party.

"Wing" Wyndham, the one-armed parachutist who intends shortly to make an attempt on Mr. Trantum's record for a delayed drop, tried out a G.Q. parachute in rough weather at Heston on the evening of the 26th ult. He made the descent from an Airwork School "Cadet."

Miss Kathleen Horlick, a pupil of the Airwork School of Flying, and Mr. Kenneth Wagg left Heston for Paris by air on Thursday, October 26, after their marriage at St. Peter's, Eaton Square. The pilot was Mr. A. C. M. Jackaman, and the aircraft his white "Monospar," which has probably carried more wedding parties to the Continent than any other private aeroplane.

The only British aeroplane to reach the scene of the Evreux railway disaster with a Press photographer in the thick weather on Tuesday was Capt. Birkett's "Puss Moth" from Heston. The wireless equipment lately fitted to this machine proved its value.

Wrightson & Pearce are expecting delivery of a new "Dragon" in about three weeks. They will also shortly take delivery of a "Puss Moth" for small charter jobs.

The Marquis de Chateaubrun left Heston on Monday in his "Gull" with two passengers for Paris.

Mr. G. J. Mahony, of Misr-Airwork, left for Egypt on Friday, October 27, in the "Dragon" with which they will operate a Cairo-Assouan service in the coming winter. He was, however, forced back by bad weather. Mr. and Mrs. Strange, Mr. G. A. Roberts, and a ground engineer are travelling as passengers on the machine, which will be the third "Dragon" to be added to the Misr-Airwork fleet.

Capt. T. Neville Stack, piloting the Airwork "Dragon" which was chartered to carry doctors and nurse to an urgent operation on the wife of the Prince of Nepal, returned to England on October 22 with his passengers, Mr. Souttar, Dr. Challis, and Nurse Bradford. The flying time on the trip was 74 hr. out to Bombay, and 56 hr. on the return flight.

Clirisms from the Four Winds.

British Aircraft for Egypt

THE Avro Trainers which are to be used by the Egyptian Government in the war against drug traffickers were inspected at Woodford Aerodrome on Friday, October 27, by the Egyptian Minister in London and Kaimakam Tait Bey, the Chief of the Egyptian Air Force. These machines are equipped with wireless, cameras, and guns. They will be flown to Egypt by Egyptian officers, who are now in training at Lympe.

Home-Made Latvian Plane

M. HERBERT CUKUNS, the Latvian officer who is flying to Gambia in West Africa in a machine designed and built by himself, landed at Agadir, Morocco, on Tuesday, October 24.

French Airman Crashes

M. CHARLES DE VERNEILH, the well-known French pilot, crashed in a fog near Dijon, on Monday, October 30, and was killed.

Air Marshal Balbo

AIR MARSHAL BALBO has returned to Rome from Ferrara. It is stated that he is almost completely recovered from his recent illness.

Sir Charles Kingsford-Smith

THE Federal Cabinet of the Australian Government has granted to Air Com. Sir Charles Kingsford-Smith a sum of £3,000 in recognition of his services to aviation. Incidentally he has joined the Vacuum Oil Co. as adviser on aviation matters.

Mr. Ulm's Progress

AFTER completing his flight from England to Australia, Mr. Ulm was delayed at Derby by engine trouble. On Friday, October 27, however, he proceeded and landed at Broken Hill. On the following day, Saturday, October 28, he arrived at Sydney, escorted by Sir Charles Kingsford-Smith.

Capt. Crawford Greene Reaches Australia

CAPT. W. P. CRAWFORD GREENE, M.P. for Worcester, who, accompanied by Lord Apsley, is flying to Australia and back, was obliged to make a forced landing in Java owing to a bird becoming lodged in an air vent. On Wednesday, October 25, the machine landed at Semarang. On Friday, October 27, Wyndham, Australia, was reached. So in 17 days this privately chartered machine, a Spartan Cruiser with three "Gipsy Major" engines, has flown from England to Australia, which must surely be the longest private charter ever undertaken by air. The machine was piloted by Mr. Lynch Blossie.

Soviet Machines for Turkey

THE TURKISH REPUBLIC has been presented with five fighter aircraft by the Soviet Government.

THE MACON JOINS THE U.S. FLEET ON THE PACIFIC COAST: The U.S. Navy dirigible, *Macon*, arrives at its permanent base after a 73-hr. leisurely flight across the Continent. The *Macon* becomes a man-o'-war on duty with the United States Fleet in the Pacific. An aerial photo made over Sunnvale Naval Air Station from the Goodyear blimp Volunteer.

Unfortunate Accident at Martlesham

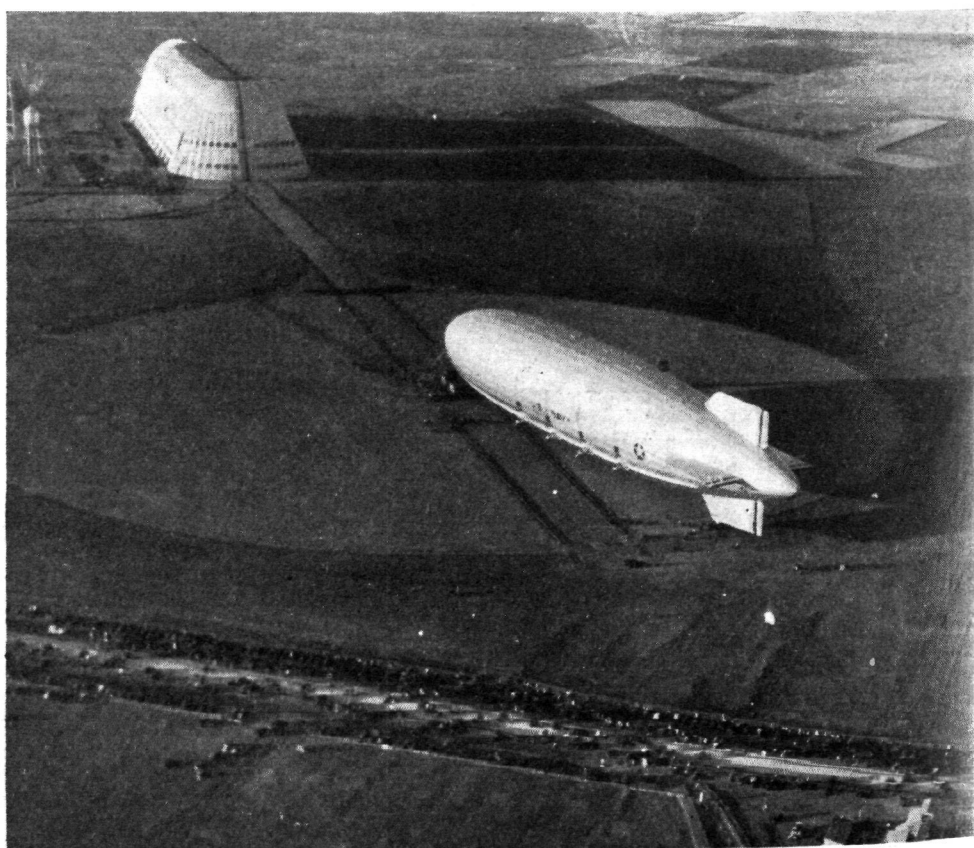
FLT. LT. G. L. G. RICHMOND, of No. 22 (Bomber) Squadron, Martlesham Heath, was seriously injured on Saturday, October 21, when he crashed on the aerodrome when testing the Boulton & Paul mailplane. Most of the tests of this machine had been carried out by Flt. Lt. Boothman, A.F.C., of Schneider fame, and he had actually taken the machine up twice that morning before handing it over to Flt. Lt. Richmond. The latter took off in a normal manner somewhere about 10 a.m. and climbed to a height of about 1,400 or 1,500 ft. He flew off towards the sea and then turned and came back over the aerodrome. Suddenly, for some reason not yet explained, the machine started a sort of flat turn in one direction. The pilot corrected this, but then a similar turn in the opposite direction commenced. The machine was then too low for the pilot to be able to correct this, and he can have had hardly any flying speed. The movement ended with a dive to earth, which wrecked the machine and seriously injured the pilot. The latter was removed to hospital, and is reported to have made a slight improvement since his admission. Apart from the injury to the pilot, the destruction of this very interesting mailplane is extremely disappointing, when it was hoped that it would soon be tried out on the Empire airways. We offer our sympathy to all concerned.

Japanese Flying Boats' Flight

IN June, 1932, three flying boats of the Japanese Naval Air Service completed a non-stop flight from Sasebo, Japan, to Keelung, Formosa, a distance of 720 miles, the time taken being 8 hr. 30 min. In addition to this flight a visit was also made to the Bonin Islands from Tateyama, a Naval Air Station, south of Tokyo. The distance was approximately 1,190 miles, which was flown in 11 hr.

The "Macon"

ALTHOUGH the United States Navy airship *Macon* is virtually a copy of the *Akron*, there are slight differences. The *Macon* outriggers supporting the propeller shafts are equipped with cowlings to cut down resistance; the radiators are faired into the lines of the hull, and when closed, as will be the case when the engines are not in operation, will merely resemble bumps or blisters on the side of the airship. Although few changes are apparent, more than

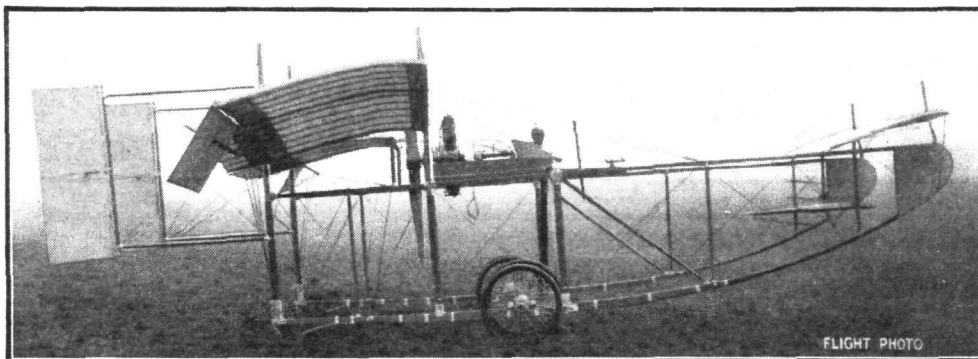




A QUARTER OF A CENTURY IN AIRCRAFT

The rapid development of aircraft may be judged by the representative pictures shown in these advertisements. Improvements in AANDP tubular products have kept pace with these developments—they have always met the demands of the designers, and are doing so to-day

Consult us about your tubular problems, or write for our book "STEEL TUBES FOR AIRCRAFT." Ask for Book No. 21



ACCLES & POLLOCK LTD.
OLDBURY :: :: BIRMINGHAM

1911.—"Valkyrie" tail-first racing model monoplane, designed by H. Barber and built at Hendon.

TO
1933

H. M. HOBSON LTD

47-55, THE VALE, ACTON, W.3

Tel.: SHE. 3321 (4 lines)

Manufacturers of the world-famous

CLAUDEL-HOBSON CARBURETTORS

and AUTOMATIC ENGINE CONTROLS

Full particulars
on application.

to comply with the latest
requirements of the Air Ministry

Save time by using the Air Mail.

BRITISH

AVIATION

PICKETING HINTS.

1. When leaving a machine unattended, never assume it to be unnecessary to picket it.
2. On no account tether or leave a machine unattended with the wings folded.
3. Don't leave a machine in a field where there are cattle.
4. Always push the nose close to the sheltered side of a hedge.
5. Use chocks at back and front of the wheels.
6. Always secure ailerons, elevators, and rudder.
7. Don't rely on the pickets on a sandy soil.
8. Picket the skid in addition to planes.
9. Don't have the ropes too tight.
10. In the event of a gale warning, picket the machine with the tail raised on a trestle to decrease the angle of attack.

INSURANCE

CO LTD

Lloyds Buildings,

3-4, Lime Street, London, E.C.3.

Telephone: Monument 0444 (5 lines).

Telegraphic Address: Aviacy, Lime, London.

"FLIGHT" Photographs

(Copyright).

BLACK AND WHITE, GLOSSY, UNMOUNTED:—

6½ × 4½ ... 1/6 8½ × 6½ ... 2/6 10 × 8 ... 3/6 12 × 10 ... 4/6

20 × 16 ... 10/6

DOUBLE THICKNESS, CREAM BASE, SEPIA TONED,

UNMOUNTED:—

10 × 8 ... 6/- 12 × 10 ... 7/6 20 × 16 ... 21/-

HAND COLOURED, IN OILS (GREY MOUNT):—

20 × 15 (MOUNT 24 × 19) ... 31/6

FLIGHT Office, 36, Great Queen Street, Kingsway, London W.C.2.
Holborn 3211 and 1884.

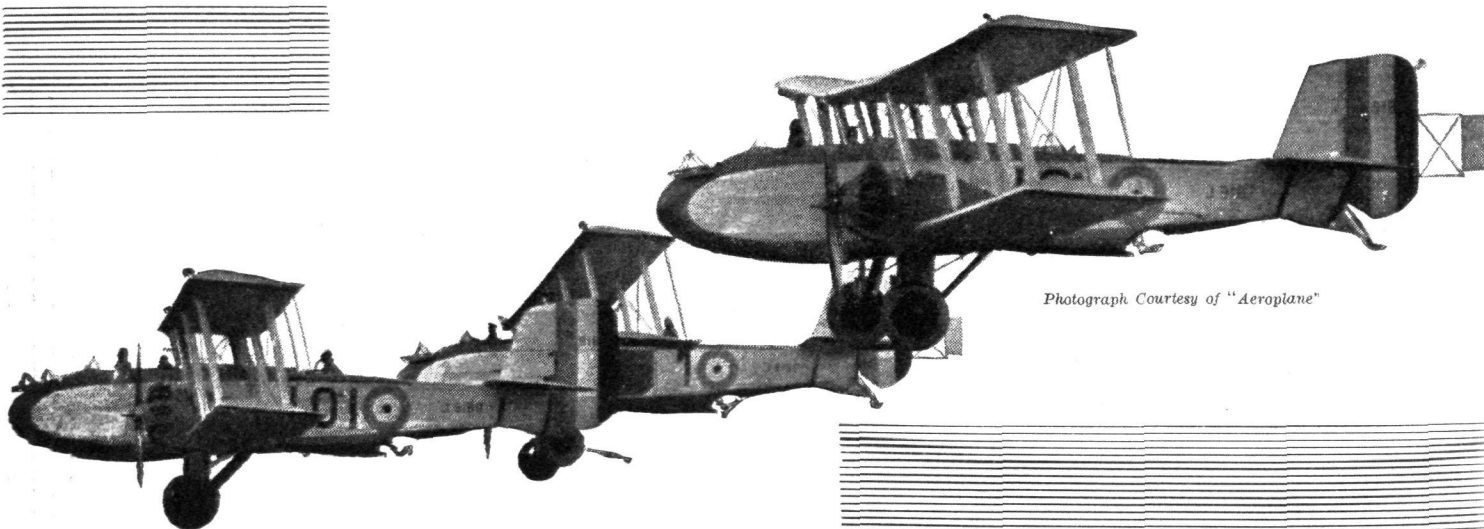
SCALE MODEL CONSTRUCTION SETS

(1/24th Actual Size)

	Price	Post free
De Havilland Gipsy Moth	3s. 0d.	3s. 4d.
Comper "Swift" (Pobjoy)	3s. 6d.	3s. 10d.
De Havilland "Puss Moth"	3s. 6d.	3s. 10d.
Supermarine Schneider Seaplane	4s. 0d.	4s. 4d.

Write for illustrated booklet to

AEROMODELS LTD. (Dept. F.)
Horton Road, Willaston, Wirral, Cheshire.



Photograph Courtesy of "Aeroplane"

HIGH PERFORMANCE SERVICE AND CIVIL AIRCRAFT

The 'planes shown are Boulton-Paul Sidestrand Twin-engined Bombers in service with the Royal Air Force.

Boulton & Paul have recently supplied to the order and specification of the British Air Ministry a high speed long range MAIL CARRIER of exceptionally high performance.

Boulton & Paul Ltd. were pioneers in the construction of all-metal aircraft and now hold a unique position in this specialised field.

BOULTON & PAUL LTD., Norwich, England

London Office: 139, Queen Victoria Street, E.C.4

Boulton & Paul are Sole Licencees for the TOWNEND RING for civil use in Great Britain and Sole Proprietors of the Townend Ring Patents abroad.

Kindly mention "Flight" when corresponding with advertisers.



A VIEW OF THE LATEST "MONOSPAR" TYPE S.T., showing the undercarriage retracted and also the new type engine cowling. The re-modelled windscreen should also be noted. These modifications have improved the performance of this machine quite considerably.

100 minor alterations have been embodied from experience gathered from the *Akron*.

The Lindberghs' Progress

COL. AND MRS. LINDBERGH left Southampton on Monday, October 23, for Ireland in the seaplane in which they flew from America. Col. Lindbergh landed at Galway during the afternoon of the same day, after having circled over Cork Harbour. He is continuing his survey flight in search of a possible route for a trans-Atlantic airway. Incidentally the advantages of Cork as a terminal airport were discussed in *FLIGHT* for July 20 of this year.

Col. and Mrs. Lindbergh left Galway shortly before noon on Wednesday, October 25, and arrived at Inverness on the afternoon of the same day. On the following day, Thursday, October 26, the Lindberghs flew from Aberdeen to Paris, where they were met by Capt. Costes.

On October 19, Col. Lindbergh, in company with Mr. J. H. Thomas, Secretary for the Dominions, visited the Prime Minister at No. 10, Downing Street, where they remained for 20 minutes.

Civilian Machines in China-Japanese War

DURING the campaign in Jehol, according to local press reports, civilian machines were mobilised by the Japanese for the transportation of troops, for the carrying of arms and ammunition, and for the removal to hospital of the sick and wounded. The aircraft engaged were Fokker F.VII, the pilots and mechanics being civilian personnel. Altogether over 1,000 hr. flying was done by these machines during the campaign.

Soviet Stratosphere Commission

A REPORT from Moscow states that the commission which has been studying the results of the Soviet stratosphere balloon ascent considers that a maximum height of 19,000 metres was reached.

"on Business"

WE have now received details of the long business flight being undertaken by Mr. H. Shaw, of the London Aviation Dept. of Shell Mex & B.P., Ltd. As reported last week, Mr. Shaw left Croydon on Monday, October 23. His machine is a Monospar (2 "Pobjoys"), belonging to the company, and he is taking with him a ground engineer, Mr. G. A. Guillermin. At the time of going to Press, the latest news of Mr. Shaw is that he reached Tripoli on Sunday. The purpose of the flight is to inspect Shell facilities at various aerodromes. Mr. Shaw, of course, is using Aero Shell Oil and Shell Aviation. On the first part of the journey, as far as Melbourne, the following are the places to be visited: Paris, Lyons, Marseilles, Pisa, Rome, Catania, Tunis, Tripoli, Sirte, Benghazi, Mersa Matruh, Cairo, Ghaza, Damascus, Aleppo, Deir-es-Zor, Baghdad, Basra, Bushire, Jack, Gwadar, Karachi, Jodhpur, Delhi, Jhansi, Allahabad, Calcutta, Chittagong, Akyab, Rangoon, Moulmein, Pitsanulok, Vientiane, Hanoi, Amoy, Shanghai, Hongkong, Vinh, Korat, Bangkok (Don Muang), Koklak, Bandon, Alor Star, Kuala Lumpur, Singapore, Palembang, Batavia, Bandoeng, Sourabaya, Bali, Bima, Kupang, Port Darwin, Daly Waters, Brunette Downs, Camooweal, Mount Isa, Cloncurry, Longreach, Charleville, Roma, Brisbane, Sydney, Canberra, Cootamundra, Melbourne. If all goes well, Mr. Shaw hopes to reach Melbourne on December 27. From Melbourne the Monospar will be shipped to Durban, whence a flight will be made to

Cape Town via Johannesburg, Kimberley, Victoria West and Beaufort West. The West Coast route will be used for the return to London, stops being made at the following points: Port Nolloth, Keetmanshoop, Windhoek, Walvis Bay, Mossamedes, Benguela, Loanda, Bonia, Leopoldville, Pointe Noire, Libreville, Duala, Kano, Sokoto, Niamey, Gao, Bidon Cinq, Reggan, Beni Abbes, Colomb Bechar, Ain Sefra, Oran, Barcelona, Marseilles, Lyons and Paris. London will be reached on February 8.

A Vulture Less

WHILE flying over India recently, Mr. A. D. Prendergast, of Imperial Airways, had a most alarming experience. His "Atalanta"-type aircraft was flying a little way below a heavy bank of nimbus cloud when he struck a vulture. Vultures seem to congregate at this particular position in the sky, and to take not the slightest notice of aeroplanes. They even let themselves be run into from behind without attempting to get out of the way. This bird, however, rammed the "Atalanta" head-on, and its bulk carried it right through the metal skin of the machine's nose, so that its entrails were strewn all round the pilot's feet. He nearly passed out with the stench, but the "sunshine roof" of "Atalanta" being opened quickly, saved the situation. The bird had, however, broken the wireless set. Luckily that was the sum of the damage, but it would have been rather nasty if it had hit the windscreen instead of a few feet below it.

Reconditioning of the "Los Angeles"

OWING to the loss of the *Akron*, the plans of the Navy Department for the operation of two airships have, for the present, been abandoned. There is, however, a proposed that the airship *Los Angeles*, which was decommissioned last year, should be reconditioned, but to date the necessary monetary provision has not been made.

Duration of Italian Aircraft and Engines

A DECREE has been published recently in Rome stipulating the maximum number of hours that certain types of equipment may be retained on civil air lines. Seaplanes of metal construction, 3,500 hr.; seaplanes of non-metal construction, 1,800 hr.; landplanes of non-metal or metal construction, 3,500 hr.; and aero engines, 2,000 hr.

Norway—England Non-Stop

TWO Norwegian airmen, Lt. Alf. Gunnestad, of the Norwegian Air Force, and Mr. Thor Berhoff, on Friday, October 13, flew non-stop from Slo in Norway to Lympne, taking 7 hr. 30 min. to do the trip. They were flying a Lockheed "Vega," named *Selo Fly*. They intended to do the return trip in one day, but bad weather prevented them from carrying out this project. On landing they reported that rain and mist had driven them out of their course off the coast of Holland.

"Gipsy Major" and Michelin Cup

FLYING a Farman 359 fitted with de Havilland "Gipsy Major" engine, the French pilot, Maurice Finat, has provisionally become the holder of the Michelin Cup. For the 1933 competition the course is a star-shaped one, with starts and landings at Orly, Paris, and turning points and landings at Marseilles, Bordeaux, and Clermont-Ferrand. The total distance is of 2,900 (1,802 miles), and Finat covered it at an average commercial speed of 214.5 km./hr. (133.28 m.p.h.).

THE ROYAL AERO CLUB OF THE UNITED KINGDOM

OFFICIAL NOTICES

REPORT of the Meeting of the Committee of the Royal Aero Club, held on Wednesday, October 25, 1933.

Present: Lord Gorell, C.B.E., M.C. (in the chair), A. J. A. W. Barr, Capt. H. S. Broad, Flt. Lt. C. Clarkson, Maj. C. J. W. Darwin, D.S.O., Lt. Col. M. O. Darby, O.B.E., W. Lindsay Everard, M.P., C. R. Fairey, Maj. A. Goodfellow, Capt. A. G. Lamplugh, Col. F. Lindsay Lloyd, C.M.G., C.B.E., John Lord, F. Handley Page, C.B.E., Maj. H. A. Petre, D.S.O., M.C. In attendance, H. E. Perrin (Secretary), B. Stevenson (House Secretary).

Alleged Dangerous Flying.—The Committee considered the report of the prosecution of R. A. C. Brie, for dangerous flying over the Kingston Bye-Pass Road, and it was unanimously agreed that the Club should give its support to the Appeal.

Gliding Records.—The following performances were accepted as British Records for Duration:—

August 30, 1933.—Flt. Lt. E. L. Mole, on the *Willow Wren* sailplane at Dunstable Downs. Duration 6 hr. 55 min.

October 9, 1933.—J. Laver, on *Prüfling* at Whitehouse Hill, near Thirsk. Duration 7 hr. 20 min.

Parliamentary Air Committee.—Lt. Col. M. O'Gorman and Maj. H. A. Petre were appointed to represent the Club at the dinner of the Parliamentary Air Committee to be held at the House of Commons on November 27, 1933.

Liability for Damage caused by Aircraft to Third Parties on the Ground.—Having considered the report of the Sub-Committee (Maj. K. M. Beaumont, Maj. A. Goodfellow and Maj. H. A. Petre), it was decided to inform the Air Council that the Club was opposed to the ratification of the Convention from the point of private owners and users of light aircraft.

Gorell Committee on Private Flying.—It was reported that Mr. F. D. Bradbrooke, Mr. W. L. Runciman and Maj. H. A. Petre, representing private owners, and Maj. K. M. Beaumont (London Aeroplane Club), Flt. Lt. C. Clarkson (Royal Aero Club), A. H. Downes Shaw (Bristol and Wessex Aeroplane Club) and Maj. R. H. Thornton (Liverpool and District Aero Club) and H. E. Perrin (Royal Aero Club) had given evidence before the Gorell Committee.

Election of Members.—The following members were elected:—E. A. Bret, R. G. Bullen, A. Collinge, J. N. Fraser, E. E. Hough, V. Jillard, A. Kumpera, J. K. Lawrence, E. G. Marchant, H. C. Puttick, W. A. Rollason, M. C. Harley, D. H. Schinkel, N. I. Smith, H. J. Stieger and G. A. V. Tyson.

Aviators' Certificates.—The following aviators' certificates were granted:—

11,442	Narchand Singh	Surrey Fl. Services	16.9.33
11,443	Malcolm Findamus MacGregor	Brooklands F.L.C.	18.9.33
11,444	Norman Fountaine Eagleton	Leicestershire Ae.C.	15.9.33
11,445	Arthur Dean Jordan	Cardiff Ae.C.	20.9.33
11,446	Cyril Stelfox	Herts and Essex Ae.C.	20.9.33
11,447	Joseph William Judge	Herts and Essex Ae.C.	17.9.33
11,448	Edward Arthur Hartley Peat	Cinque Ports F.L.C.	20.9.33
11,449A	Gerald Ivor Byrne	The Autogiro Fl. School	21.9.33
11,450	Claude Henry Treacy Barrow	Hanworth Club, N.F.S.	9.9.33
11,451	Robert Hutchinson	De Havilland School of Fl.	22.9.33
11,452	Leonard Joseph Marshall	L.G.O.S.A. Fl.C.	19.9.33
11,453	Count Fermo Murari Bra	Airwork School of Fl.	24.9.33
11,454	Eric Alfred William Dymond	Herts and Essex Ae.C.	23.9.33
11,455	Alexandre Marie Pierre Garric	Herts and Essex Ae.C.	23.9.33
11,456	William Earle Belgrave	Lancashire Ae.C.	21.9.33
11,457	Elizabeth Sym Cook	Scottish Fl.C.	39.33
11,458	Violet A. H. Inglis	Norfolk and Norwich Ae.C.	15.9.33
11,459	John Anthony Rooper	Phillips and Powis	21.9.33
11,460	Harold Pound	London Ae.C.	3.9.33
11,461	Kendrick Herbert Salusbury Hughes	Hanworth Club, N.F.S.	26.9.33
11,462	David James Reoch Ritchie	Scottish Fl.C.	24.9.33
11,463	Richard Glyn Jones	Herts and Essex Ae.C.	1.9.33
11,464	John Bassett Woodward	L.G.O.C. Fl.C.	26.9.33
11,465	Donald Edward Stone	Lancashire Ae.C.	28.9.33
11,466	John Bagwell-Purefoy	Norfolk and Norwich Ae.C.	24.9.33
11,467A	Robert Graeme Tulloch	Autogiro Fl. School	30.9.33
11,468	Walter George Watson	Norfolk and Norwich Ae.C.	29.9.33
11,469	Thomas John Black Wood	Scottish Fl.C.	12.8.33

11,470	Alastair Mowat Maclay	Scottish Fl.C.	20.9.33
11,471	Thomas George Colligan	Scottish Fl.C.	28.9.33
11,472	Frank Ronald Willson	Northamptonshire Ae.C.	2.10.33
11,473	Colin Galbert Cook	Hampshire Ae.C.	30.9.33
11,474	John Milne Barbour	Scottish Fl.C.	20.9.33
11,475	Nigel Hugh Barne	Eastern Counties Ae.C.	28.9.33
11,476	Francis Cator	Royal Aircraft Establishment Ae.C.	3.10.33
11,477	Frank Ten Bes	Yorkshire Ae.C.	28.9.33
11,478	Robert Frederick Edmund Parkinson	North Staffs Ae.C.	30.9.33
11,479	Norman David Melville Johnstone	Airwork School of Fl.	3.10.33
11,480	Felix Peltzer	Liverpool and District Ae.C.	3.10.33
11,481	John Davison	North Staffs Ae.C.	30.9.33
11,482	Stanley Stephenson	Blackpool and Fylde Ae.C.	4.10.33
11,483	Guy Antony Chalkley	Airwork School of Fl.	5.10.33
11,484	Hubert Edward Whatley	Airwork School of Fl.	5.10.33
11,485	Steuart Herbert Binning	Bristol and Wessex Ae.C.	5.10.33
11,486	William Alan George Suddaby	North Staffs Ae.C.	3.10.33
11,487	Stanley York Preston Gardner	Yorkshire Ae.C.	17.9.33
11,488	Edward Andrew Shipman	Wiltshire School of Fl.	6.10.33
11,489	James Duthrac Carnegie	D.H. Technical School	5.10.33
11,490	Benjamin Ball	De Havilland School of Fl.	10.10.33
11,491	Hans Ulrich Uebele	Hanworth Club, N.F.S.	19.9.33
11,492	Maurice Joseph Alexander Paterson	Cinque Ports F.L.C.	29.9.33
11,493	Charles Hubert Allen	Cinque Ports F.L.C.	26.9.33
11,494	Arthur Lindsay Grant	Cinque Ports F.L.C.	29.9.33
11,495	Richard Thackery Needham	Brooklands F.L.C.	9.10.33
11,496	Rex Edward Lezard	Brooklands F.L.C.	9.10.33
11,497	Richard Arthur Dyke Jones	Brooklands F.L.C.	10.10.33
11,498	Edward Aitken Brodie	Brooklands F.L.C.	6.9.33
11,499	Frederick John Alastair Cameron	Phillips and Powis	1.5.33
11,500	Edwin Downs Green	Lancashire Ae.C.	8.10.33
11,501	Israel Shamah	Phillips and Powis	13.10.33
11,502	Reginald Sorby Horrox	Lancashire Ae.C.	14.10.33
11,503	Charles Salkeld Robinson	Lancashire Ae.C.	14.10.33
11,504A	John Cyril Maude	Autogiro Fl. School	12.10.33
11,505	Walter Lionel McCann	Herts and Essex Ae.C.	15.10.33
11,506	Thomas Henry Foulds	Nottingham Club	16.10.33
11,507	Helle Vibeke Krag Juel Vind Frijs	Air Service Training	16.10.33
11,508	Thomas Dunlop Foulds	Scottish Fl.C.	5.10.33
11,509	Joseph Varr Docherty	Scottish Fl.C.	14.10.33
11,510A	Robert Arthur Yeomans	Autogiro Fl. School	15.10.33
11,511	Edward Claude Middleton	Hanworth Club, N.F.S.	15.10.33
11,512	Robert Hugh Barnard	Herts and Essex Ae.C.	20.9.33
11,513	Francis Arnold Montague	Airwork School of Fl.	17.10.33
11,514	Axel Gunnar Anderson	East Anglian Ae.C.	14.10.33
11,515	John Leslie Mann	Midland Ae.C.	6.10.33
11,516	Edward Bruce Stewart-Smith	Midland Ae.C.	6.10.33
11,517	Frederick John Knight	Midland Ae.C.	6.10.33
11,518	Peter Humphrey Lewis	Brooklands F.L.C.	10.10.33
11,519	Hugh Guyer Small	De Havilland School of Fl.	9.10.33
11,520	Bernard William Barton	De Havilland School of Fl.	13.10.33
11,521	Lancelot Ernest Holland	Airwork School of Fl.	20.10.33
11,522	Ernest Murray Palmer	Herts and Essex Ae.C.	21.10.33
11,523	Theophil Ferdinand Wurth	Herts and Essex Ae.C.	21.10.33
11,524	Henry Forster Withy	Brooklands F.L.C.	16.10.33
11,525	John Noel Gladish	Scarborough Ae.C.	3.10.33

Gliding Certificates

347	William Liddell	Ulster Gl. and Aviation C.	10.9.33
"B" Certificates			
343	Charles Espin Hardwick	London Gl.C.	8.10.33
347	William Liddell	Ulster Gl. and Aviation C.	10.9.33
186	Frederick Stewart Coleman	Manchester Gl.C.	1.10.33
19	Basil Alfred Gregory Meads	Manchester Gl.C.	1.10.33
"C" Certificates			
347	William Liddell	Ulster Gl. and Aviation C.	24.9.33
342	Hugh Charles Bergel	London Gl.C.	15.10.33
186	Frederick Stewart Coleman	Manchester Gl.C.	8.10.33
19	Basil Alfred Gregory Meads	Manchester Gl.C.	8.10.33

Racing Committee Meetings on Wednesdays, October 4 and 18, 1933:—

Present:—W. Lindsay Everard, M.P. (in the Chair); Lt. Col. M. O. Darby, O.B.E.; Flt. Lt. D. W. F. Bonham-Carter; Maj. A. Goodfellow; Maj. R. H. Mayo, O.B.E.; Wing Com. H. M. Probyn, D.S.O.; H. E. Perrin (Secretary). Air Commodore R. Williams and Flt. Lt. T. A. Swinbourne (representing the Commonwealth of Australia) also attended.

London-Melbourne Air Race.—The Committee considered and approved the Regulations to govern the London-Melbourne Air Race, to be held in October, 1934, for which Sir MacPherson Robertson has donated a sum of £15,000.

King's Cup Air Race, 1934.—The Committee decided that the Race for the King's Cup, 1934, should be run on similar lines to that of 1933, the race to extend over two days, over a course of approximately 800 miles.

Offices: THE ROYAL AERO CLUB,
119, PICCADILLY, LONDON, W.1.
H. E. PERRIN, Secretary.

PILOTS' LICENCES IN CANADA

ON October 1 amendments to the regulations governing pilots' licences came into force in the Dominion of Canada. These provide that private pilots may not take up passengers in any aircraft unless they have completed at least 25 hours' solo flying. Hitherto only 10 hours' experience has been required, but the old conditions requiring 2 hours' experience in that type of aeroplane during the preceding six months still holds good. Holders of commercial pilots' licences may not carry passengers for hire in any aircraft unless they have completed at least 100 hours as first pilot; also they may not give dual instruction unless specially authorised.

It will be seen that these regulations differ materially from those in force in this country. We have no restrictions about holders of our "A" licence, which is our equivalent of the private pilot's licence, taking up passengers, though some of the flying clubs have their own rule that their members may not take up passengers in club aircraft unless that member has completed a certain number, generally about 25 to 50 hours, solo flying. The matter of this restriction is now receiving consideration, and will no doubt be one of the many things discussed by the Gorell Committee, but the general consensus of opinion seems to be that we had far better err on the side of too few regulations and leave it to the innate common sense of those who fly. In any case, it is doubtful whether many people ever go up as passengers with pilots who have had less than 25 hours' experience. The condition requiring 2 hours' experience in a type during the preceding six months seems to us somewhat redundant. A private pilot who has been flying for some years, who has had experience of a number of different types and who is not considered fit to take passengers unless he has had 2 hours'

experience on a particular type, is not fit to fly at all. With regard to the commercial pilot's restrictions. In this country no one can obtain a "B" licence until he or she has completed 100 hours' flying, but, having obtained the licence, they are permitted to carry passengers on the type of aircraft for which the licence is granted. In Canada the commercial pilot's licence is divided into categories for light, medium and heavy machines, and may be granted to pilots with only 50 hours' experience. This, however, only permits them to carry goods or mail, until such time as they have completed 100 hours in solo charge of the aircraft. It will be interesting to see whether our authorities will grant limited "B" licences on only 50 hours' experience when we start to run mails and goods.

On the whole, the Canadian regulations are somewhat more arbitrary than ours, but are in some ways a little simpler. They also allow pilots, in the commercial class at any rate, to get a licence at an earlier date in their flying experience, but that licence, when obtained, does not amount to as much as our own, for which more experience is necessary. This would seem a good opportunity to comment upon what we consider a misleading practice. That is, referring to solo flying as the experience necessary to obtain licences. The word solo implies that the pilot is alone in the aeroplane; therefore, if while piling up his hours for his "B" licence he takes a passenger about with him he is not flying solo. The wording of the regulations make it quite clear what is meant, as they state . . . as pilot in sole charge of a flying machine . . . so that apart from the 3 hours' solo flying necessary for obtaining the "A" licence, which quite obviously it is desirable should really be solo, we suggest that the phrase "solo flying" could well be dropped.



LOW FLYING

Both Sides of the Question

IN view of the number of prosecutions for low flying recently reported in the press, the Automobile Association draws attention to some aspects of the matter which are not generally appreciated by the public. Safety is naturally the first consideration, and it is not irrelevant to mention the provisions of the Air Navigation Orders, which state that an aircraft shall fly over a town at such an altitude that it can land outside the town if it should have a mechanical breakdown, and that an aircraft shall not be flown in such a manner as by reason of low altitude or proximity to persons or dwellings, to cause unnecessary danger to any person or property.

There are a number of circumstances in which an aeroplane may fly low without causing unnecessary danger. If it is over an open field it can land safely without damage to people or property, and the faster the aeroplane is being flown the safer it is, for speed gives it a wider gliding range and consequently a wider choice of a suitable landing place.

The term "low flying" is liable to misinterpretation. Even experienced pilots are unable to judge the height of an aeroplane at all accurately. A heavy aircraft at 1,000 feet, for instance, will appear lower than a light single-seater at 500 feet, whilst noise is apt to influence opinion on this point.

Flying below a certain altitude is not prohibited by the Air Navigation Orders, because in the interests of safety the widest possible choice of action must be left to the pilot.

A pilot must fly low when approaching an aerodrome where he is to land and when taking off. In the majority

of cases it is unwise for a pilot to fly in clouds. If the clouds are low, he must fly below them, and in the English climate he may often have to fly at 400 or 500 feet. He should then steer a course so as to fly over country that offers the best chance of a safe landing in an emergency. In foggy weather, too, a pilot should not fly so high as to lose sight of the ground.

There is naturally a limit to this necessarily low flying, and if the weather conditions are such that a pilot cannot fly low in safety, then he should land as soon as possible or remain on the ground until the weather improves.

There are often conditions when what is generally called "low flying" is the only safe way of flying. Except near an aerodrome this low flying causes little inconvenience, as an aeroplane, owing to its speed, soon passes by and most civil aeroplanes are relatively silent.

In fine weather, when the clouds are high, there is very seldom any good reason for flying low. The only extenuating circumstances are when a slow aeroplane is flying against a strong head wind.

The most common complaints of low flying arise against pilots who are showing off before their friends on the ground. This too often ends in disaster. Pilots sometimes fly low to impress their passengers, as it is only when an aeroplane is flying low that the occupants get an impression of speed.

The A.A. suggests that both these forms of flying should invariably be avoided. Even if they are so skilfully carried out that no risks are run, they are apt to cause considerable inconvenience to people on the ground and to bring the good name of flying into disrepute.



Mr. Robert Blackburn

MR. ROBERT BLACKBURN has taken over Chairmanship of the Cirrus-Hermes Engineering Co., Ltd. His interest will be a purely personal one, and not connected in any way with Blackburn aircraft factory. It is understood that he will devote much of his time to this firm, and that interesting developments may be expected therefrom.

Five Times Better

IN the article on "Airwork Engine Service" in THE AIRCRAFT ENGINEER (Monthly Technical Supplement to FLIGHT) published last week, the statement was made that the Churchill crankshaft grinding machine works regularly to limits of two-thousandths of an inch. Actually this should have read two-tenths of a "thou".

Correspondence.

The Editor does not hold himself responsible for opinions expressed by correspondents. The names and addresses of the writers, not necessarily for publication, must in all cases accompany letters intended for insertion in these columns.

VICTOR McCUDDEN FUND

[2889] As President of the Coronation Club I am taking the liberty of bringing to your notice the sad case of Victor McCudden, the last of the famous four brothers of the late Maj. James Byford McCudden, V.C., D.S.O., M.C., M.M., who has for some time been in the West London Hospital, having been operated on there for a very serious internal complaint.

I know that the newspapers of this country are always ready to give their support and columns to a genuine appeal. Young McCudden (who is only just over 30 years of age now) is a married man with one child, and having been in the hospital for nearly six months financial assistance is at the moment most urgent.

Donations may be sent to the above Club addressed either to myself or to Mr. S. Emms (Hon. Treasurer).

ALFRED G. J. LITTLEWOOD (President)
(ex R.A.F. 2nd Lieut. (Transport),

The Coronation Club, 22, High Street,
Kingston-on-Thames.

October 25, 1933.

REGULATION OF CIVIL FLYING

[2890] Maj. Mealing's contribution to the safety of aviation will probably not be fully appreciated for several years, because it seems to be psychologically true that it is impossible to apprehend danger properly without personal suffering. It happens that I have had considerable personal suffering in relation to bad weather flying, and therefore my apprehension of the danger is peculiarly acute.

The proposition that the third dimension (variation of height) should be used for determining fairways for aircraft is, in my view, fundamentally sound. The only excuse for flying is speed. Speed is an attribute of aircraft because they are three dimensional. It is logical therefore that their three dimensional properties should be exploited to the full.

It may be of interest to record that flying rules near a school in this country which was apt to have over 40 aeroplanes in the air at once, some seven or eight of which were constantly engaged in blind flying instruction, included provision that certain aircraft should fly in certain strata. Blind flying instruction was carried out with immunity from accident when the birds were walking. The general rule and principle was that all aircraft engaged should fly into the aerodrome on a definite bearing at an approximately definite angle; that they should all leave the ground on the same bearing and at their uniform climbing angle; and that in the air aircraft flying up-wind flew between 500 and 1,500 ft., and aircraft flying down-wind above 2,000 ft. This rule is, of course, economically applicable to cross-country flying. Even in thick fog the risk of collision between aeroplanes flying on approximately the same bearing at approximately the same speed is negligible, for the rate of closing is slow and gives time for dodging. Up-wind and down-wind are defined as being on any bearing within 45 deg. of the wind direction.

Touching a further point, it is a pity to limit one's considerations practically solely to Croydon. Any discussion on the subject must be so condemnatory of Croydon as a safe aerodrome for the future, as to indicate some more open terminal for general use. Whatever regulations are made should be of absolutely general application, so that one has no need of a handbook to find out what restrictions there are at one's destination. In any case I would plead for the complete abolition of any but commercial flying at a terminal airport. One does not find amateurs driving trains on commercial railways, and amateur sailing is frowned on in congested ports.

Many amateur pilots to-day demonstrate that they have not sufficient sense of responsibility to be left unguided by regulation. Recently I have twice followed obvious but unofficial Bradshaw courses along main railways, conscientiously keeping the line well to my left, only to find another aeroplane blithely blundering along in the opposite direction keeping the line on its right. Apart from the fact that in both cases the pilot must have been suffering

considerably from a draught in the face, those two incidents have made me give railways a wide berth in thick weather.

I would respectfully plead for more attention to bad weather training. If the commercial pilot is in future to be surrounded, not only by his blind-flying instruments, but also by radio gadgets and orders from the ground, then he must have his technique absolutely subconscious. I would suggest that on ordinary air lines the pilot be compelled to fly by instruments all the time, there being a second operative to act solely as a lookout. Then, when blind conditions descend, the pilot will not be in the least degree embarrassed, and need hardly know that visibility is non-existent. It is much better and safer always to fly in a prepared state than to have to revert in mentally disturbing circumstances to a more harassing technique.

W. E. P. JOHNSON.

London, W.C.2.

October 26, 1933.

[2891] "Private Owner" appears to take an unduly pessimistic view of the situation. At the same time, he is rendering a valuable service by pointing out the danger that may face the private owner if ill-considered steps are taken, based either on a mistaken idea of the principles involved or panic.

It would be refreshing if a new attitude could be adopted towards the major problems of the day, and certainly to the major problems in regard to aviation. The sum total of most of the efforts made through official action can be summarised as a policy of negation. It is deplorable to think that our only contribution, usually when we are faced with any problem of a major character, is to try and resolve it by a series of prohibitions. Surely it is an admission of a barrenness of constructive ideas too lamentable for words. Perhaps the canker of Safety First may be largely responsible for this wealth of negative suggestions.

If we will face the whole problem with a determination to find its solution, not by prohibiting this, that, or the other, but by finding constructive proposals which will enable the private owner, the flying charabanc and the regular air liner to develop freely, then we may claim constructive statesmanship and constructive administration.

For obvious reasons, I am not anxious at the present time to put forward a series of suggestions which occur to me as a possible contribution towards the problem ahead, but if your readers will put forward ideas of a constructive character, based on the principle of providing freedom for development of each interest, a most useful contribution will be made to aviation development in which we are all so deeply interested.

E. C. GORDON ENGLAND.

London, S.W.1.

October 27, 1933.

THE PIONEERS OF FLYING

[2892] In your issue of October 19 you published on page 1046 a letter from Mrs. Greenwood under the heading "The Pioneers of Flying," which, I think, is greatly to be deplored, because I feel it is a definite attack on the Mollisons, although the letter states that no disrespect is meant to the Lindberghs, Earhearts, and Mollisons.

I think the letter does definitely show disrespect to those mentioned, particularly the Mollisons, because, so far as I know, the Mollisons are the only people in British aviation who have been subjected to a reception on the lines indicated in the letter, i.e., "by cheering crowds that stand outside our palatial hotels to catch a glimpse of our famous and wealthy record breakers. . . ."

Whilst I have not been in the cheering crowds that stand outside our palatial hotels, I have been to one or two receptions to this famous pair, and have applauded, along with many famous men and women in British aviation, the good shows the Mollisons have put up.

Surely I am right, and many will agree I am right, when I say that Mrs. Mollison did not become wealthy

722
Phone 1444 Woodstock

AERIAL PHOTOGRAPHY

AIRCRAFT ENGINEERS, OPERATORS

Air Taxi Company

MUNICIPAL AERODROME
WINGFIELD - MAITLAND

12th September, 1933.

Cirrus-Hermes Engineering Co., Ltd.,
Croydon Aerodrome,
London,
ENGLAND.

Dear Sirs,

This is to express my entire satisfaction with the Hermes II Engine fitted to my Koolhoven Monoplane. I have completed a search for the missing Swiss Airman.

The distance covered was over 11,000 miles and extended throughout seven different countries including:-

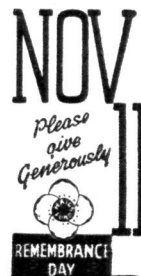
South West Africa.
Angola.
Belgium Congo.
French Equatorial Africa.
Northern Rhodesia.
Southern Rhodesia.
Union of South Africa.

although the engine had to operate under extremely trying climatic conditions, it never dropped a rev, although at different times I was unable to obtain the correct grade of oil and had to use unsuitable lubricants.

On arrival back to Cape Town the engine was given the usual inspection and needed no replacement, baring one cracked engine bearer foot.

Yours faithfully,

J. Williamson



Save time by using the Air Mail.

MALLITE AND APPCO PLYWOOD

**SPECIAL ATTENTION
TO
DECORATIVE CABINS**

TELEPHONE
BISHOPSGATE
5641
(4 lines)

USED BY THE LEADING AIRCRAFT MANUFACTURERS
THROUGHOUT THE WORLD

MANUFACTURED TO THE BRITISH AIR MINISTRY SPECIFICATION 4.V.3 BY
**The AERONAUTICAL & PANEL PLYWOOD CO. LTD., 218-226, Kingsland Rd.,
LONDON, E.2.**

**RELIABLE FOR
AERO AND SEAPLANES**

TELEGRAMS
VICPLY
BETH
LONDON



THERE'S NO DOUBT
That the highest quality lubricant for aero-engines is

ONE GRADE ONLY
FOR
WINTER & SUMMER

Speedolene

AERO OIL

SILVERTOWN LUBRICANTS LTD.
Minoco Wharf, West Silvertown,
London, E.16.



40% lighter than Aluminium

That is one of the features of our **MAGNESIUM ALLOYS**—another is their excellent physical properties. These factors make the **MAGNESIUM ALLOYS** peculiarly suitable for numerous parts in Aircraft and Automobile work.

The Alloys can be supplied in the form of Castings, Forgings, Extrusions, etc.

PLEASE WRITE US FOR ALL PARTICULARS.

British Maxium

LTD.

**Point Pleasant, Wandsworth,
LONDON, S.W.18.**

Telegrams :
"Ognesiuma, Put, London."

Telephone :
Putney 4807.

Send
for:



Enclose 3d. to cover postage, packing, etc.

HOYT

ANTI-FRICTION
(WHITE) METALS

NUMBER ELEVEN

MOST DEPENDABLE — MOST DURABLE.
IN LARGEST USE FOR AERO ENGINES.

Other Grades for all requirements.
HOYT METAL CO., LTD., DEODAR RD., LONDON, S.W.15.
Telegrams : "Profanity, Phone, London."

DICKSON GLIDER

Complete Sets of Working Drawings (Blue Prints) in great detail. The machine has been considerably re-designed. Strength and durability improved without increase in weight.

CHEAPER AND EASIER TO CONSTRUCT.

Price 30/-

"FLIGHT" Office,
36, Great Queen Street,
Kingsway, W.C.2.

Kindly mention "Flight" when corresponding with advertisers.

through exploiting aviation? When, as Amy Johnson she set off to Australia, I suggest she had no idea that a large sum of money would be handed to her on her return to England, or the many other gifts she has received from time to time.

I believe that Mrs. Mollison was honest when she said that she only took up aviation for the love of it, as many more fine women have done, and with a view to doing something for British aviation. They have certainly done their bit in that direction. Such criticism as is meted out by Mrs. Greenwood does not conduce to further record breaking attempts on the part of women at any rate.

Mrs. Greenwood may rest assured that none of the pioneers are forgotten, and not a few of the later-day ones have acclaimed the Mollisons for doing a good job of work.

Mrs. Greenwood mentions the names of those two gallant men, Alcock and Brown—is this the extent of her list of pioneers, without reference to records or informants?

It is not difficult for anyone in aviation to see who are the people who have exploited aviation under the guise of "pioneers," and had Mrs. Greenwood written about these I would have been delighted to subscribe to her views.

Perhaps we shall hear at some future date that Mrs. Greenwood is to set out to beat Mrs. Mollison's record for the London to the Cape flight, or better still fly the Atlantic? I have no doubt that plans have already been discussed at the tea-parties in the same way as the pioneers of flying have been discussed.

If the Mollisons, "Smithy," John Trantum, Charles Ulm, the Lindberghs, and Miss Earheart, and those who follow on are to be subjected to mud-slinging all their life—God help 'em.

How unkind it is.

J. L. R. WAPLINGTON.

Mill Hill, Middlesex.

October 28, 1933.

INDIAN AIR MAIL STAMPS

[2893] In the article on "Air Post Stamps," Mr. Douglas Armstrong, in your issue of October 5, writes: "India already has her own distinctive stamps for air mail purposes, but there is reason to believe that supplementary values are contemplated in connection with the latest developments" (Indo-Ceylon Air Service). Unfortunately, Sir, I have just received a Government Postal Circular, dated September, 1933, wherein it states, "Existing stocks of air mail stamps are being exhausted and will not be renewed. Ultimately, only ordinary stamps will be available." It would be no good inquiring why special air stamps are to be allowed to lapse, because the mentality of the Post Office is such that, were any explanation forthcoming, it would be quite fatuous. In the meantime those who have Indian Air Mail stamps would do well to husband them carefully.

THEO. H. THORNE
(Ed., *Indian Aviation*).

Calcutta.

October 23, 1933.

Book Reviews.

"*Knight of Germany—Oswald Boelke.*" By Professor Johannes Werner, translated by Claud W. Sykes. (John Hamilton, Ltd. Obtainable from FLIGHT Office. Price 9s., post free.)

A LIFE of Capt. Oswald Boelke was overdue. The name of Baron Manfred von Richthofen is well known to all who study the air fighting during the great war, and an elaborate history of his life has been written. But von Richthofen, great as he was, was only the pupil and successor of Boelke. It was the latter who began the organisation of the "Staffel," or fighting squadron, and by his leadership, even more than by his personal skill and prowess in air combat, raised the German flying corps out of the slough of despond into which it had fallen during the battles of the Somme. Oswald Boelke was a great personality. What is more, he was a lovable man. Keen fighter as he was, and terrible in conflict, he never degenerated into a mere brutal killer. Chivalry was as much a part of his character as was courage, and when he died the Royal Flying Corps dropped a wreath behind the German lines inscribed, "to the memory of Capt. Boelke, our brave and chivalrous opponent." Another wreath was sent to his funeral by some British pilots who were prisoners of war to "the opponent we admired and esteemed so highly." One of these four had been shot down by Boelke himself, and the victor had had a photograph taken of himself and his captive side by side.

These incidents show how Oswald Boelke was esteemed by those who fought against him. The "human" side of his character is also well illustrated by the following extract from one of his letters to his parents not long before his death. "In view of these many 'numbers,'" he wrote, "Mother will be saying again that it is not right to number our victims in this unfeeling way. But we don't really do it—we do not number the victims who have fallen, but the machines we have brought down. That you can see from the fact that it only counts as one victim when two inmates are killed, but that it still remains a number when both inmates escape unhurt. We have nothing against the individual; we only fight to prevent him flying against us. So when we have eliminated an enemy force, we are pleased and book it as one up to us." He was also at pains to rub into the untrained pilots of the Staffel, which he was forming and training, that it did not matter which of them got credit for a victory, so long as the Staffel got it.

It is perhaps flattering to British sentiment that this young hero was a Saxon. It is true that historians tell us that the Saxons of England came from the neighbourhood of Hanover rather than from modern Saxony; but all the same during the war the British had always a kindlier feeling for the Saxons than for any other Germans. The Boelke family lived at Dessau, where the father of Oswald was a schoolmaster with the title of Professor. When he grew up he was given a commission in a Telegraph Battalion of the Army, from which he transferred to the Flying Corps not long before the war. His biographer has printed large extracts from his letters to his parents at all stages of his career, and from them we can get a good insight into his character. Though he suffered from asthma at times, he was a fine athlete, and he entered with zest into all forms of life, both work and play. He was intensely devoted to his parents and to his brothers, and his letters show him as an ingenuous, enthusiastic, clean-minded young man, who was popular wherever he went, and who was always going hard. Only once do we hear of his being unpopular, and that was in the early days of the war. His elder brother William was an observer, and he obtained the services of Oswald as his pilot—at that time in the German Flying Corps the observer was always senior to the pilot. The two brothers stayed in the air so much that the rest of the squadron got jealous. Other pilots got nerve-wracked after a couple of hours' flying, but Oswald Boelke said that he had no nerves, and so was never upset by any amount of flying.

When Max Immelman was making his name, Oswald Boelke was often his comrade in fights, and the two raced neck and neck in the number of Allied aircraft brought down. Both were decorated at the same time with the *Pour le Mérite*, which is the German equivalent for the Victoria Cross. When Boelke had scored 20 victories, he was forbidden by the Kaiser to fly any more, and was sent on deputation to the Eastern front, Turkey and Bulgaria. During his absence the Somme attack started, and the British Flying Corps drove the Germans pretty well out of the skies. Boelke was then ordered to form a Staffel for fighting purposes, and this new organisation took heavy toll of British machines before the Somme battles ended. He was an inspiring and a beloved leader, but he was very much the commanding officer. He had hard work to train his pupils, von Richthofen and the rest, into the idea of team work. Boelke wrote home: "Sometimes I have to turn my heavy batteries on to them. I always give them some instruction before we take off and deal

out severe criticism after every flight, and especially after every fight." In the final stages of the Somme, Boelke had 20 more victories to his own guns, bringing his total up to 40.

On October 28, 1916, Boelke took up his Staffiel to engage a British fighter squadron over the lines during an infantry attack. His best friend, Lt. Erwin Bohme, wrote that the British "defended themselves well." He continued: "Boelke and I had just got one Englishman between us when another opponent, chased by friend Richthofen, cut across us. Quick as lightning Boelke and I both dodged him, but for a moment our wings prevented us from seeing anything of one another—and that was the cause of it." Boelke's left wing tip hit Bohme's undercarriage, and both machines fell out of control. Soon both pilots got them in hand again, and Bohme saw Boelke heading for his lines in a gentle glide, with his left wing tip down. Then the "Albatros" got caught in gusts, and crashed near a battery position. Bohme, who turned over on landing, but was not hurt, said that Boelke's crash was "not too bad a one," and that he might have survived if he had worn a crash helmet and been strapped in. As it was, he was killed instantaneously. The loss to the German cause was heavy, but Boelke had done his work. The principle of fighting in Staffiels had been established, and Boelke had shown how it was to be done. It remained for others, his equals in bravery, but not all his equals in other respects, to carry on the work of which he had laid the foundations.

F. A. DE V. R.

"Schneider Trophy." By Wing Commander A. H. Orlebar, A.F.C. (Seeley, Service & Co., Ltd.) Obtainable from FLIGHT Office. Price 13s. 3d. post free.

PERHAPS it was not wise of the Editor of FLIGHT to select as reviewer of Orlebar's book one who followed, as closely as was permitted to a Press correspondent, all the fortunes of the Schneider Contests from 1923 to 1931. To such an one this book is a sheer delight to read, and it seems so excellent that he cannot judge fairly whether the book will make a wide appeal or not. Perhaps it will, for interest in flying is pretty wide-spread nowadays, and interest in speed is more universal still. At least it can be said that the Commanding Officer of two High Speed Flights writes in an excellent style, and that in itself is a great recommendation to all readers. Those who know Orlebar, even slightly, would be sure that he would attempt nothing flowery, and the absence of purple patches is one of the merits of this book. It is written in correct, plain, straightforward, English, and it has the supreme merit that it is interesting all the way through. The book is one more proof that the interest of a reader can be excited and maintained without any attempt at striking verbiage. "Schneider Trophy" is not journalese—it is literature.

Still, there is unconscious art in the way in which this story is told. The author did not sit down to write a history, but he edited and published notes which he had made during the years 1929-31. The result is almost a diary in form, and the interest of the story is maintained, because each chapter is written without the knowledge of what the morrow would bring forth. As we read the book, we live again through those stirring times, our spirits rise when things go well with the Flight, and sink when hitches occur. Consequently, we join once more in the exultation over Waghorn's victory in 1929 and Stainforth's record in 1931. The High Speed Flight lived in a little

world of their own, and quite naturally they were a little alarmed when the Press descended in numbers upon Calshot. It was hardly possible for them to realise how near their troubles and their successes came to the hearts of the British public, which looked on the High Speed Flight as the champions of the nation, and how the spirits of those same journalists and of the public rose or sank when things went right or wrong.

The details of the happenings had perforce to be kept secret at the time, and spectators who saw that things had not gone well on such and such a trial had to be left in the dark as to the cause. Now Orlebar has explained everything quite frankly, and has given the answers to the riddles which puzzled us in the two years of the contests with which he was concerned. We are very grateful to him, and we only wish that he had been able to tell also the inner history of the contest of 1927 at Venice.

Thanks to the diary method of telling the story, the record is very complete. It will be an invaluable book of reference to the next High Speed Flight, when the time comes for Great Britain to take up work on high-speed seaplanes once more. Not an incident of any consequence is left unrecorded and unexplained. The explanation often has to deal with very technical matters, but Orlebar's gift for lucid explanation is such that a very minimum of technical knowledge is required to understand the various problems which were met, and the way in which Mr. Mitchell (spoken of throughout the book as "Mitch"), the Rolls-Royce experts, and the pilots overcame them one by one. The only mystery not explained in full is the tragedy of the beautiful little Gloster 6.

The book concludes with a chapter of "Reflections," many of which Orlebar has already made public in lectures or in the speeches which he says he hates so heartily. Here we will merely allude to one, in which he says that "to a mere pilot some radical change in propeller design seems a most urgent necessity."

In 1929 it soon became known that in Orlebar the High Speed Flight had found the ideal commander. In him it has now found also the ideal historian.

F. A. DE V. R.

"Manual of Air Force Law" (Air Publication 804). (H.M. Stationery Office.) Obtainable from FLIGHT Office. 7s. 6d. post free.

THE 2nd edition, 1933, of the "Manual of Air Force Law" has now been produced. Like other legal documents it is very bulky. Twelve years have elapsed since the publication of the first edition, and although the second edition covers much the same ground as the first, various King's Regulations and Air Council Instructions have been responsible for many additions and modifications. Free and extensive use has been made of the 7th edition of the "Manual of Military Law." In the present edition the portion dealing with Air Force Discipline has been considerably expanded, and for convenience subdivided into three chapters under the headings: Offences and Punishments, Arrest, and Courts Martial. The rules of Procedure have been substantially revised. Although it has not yet been found possible to incorporate in this Manual a chapter relating to Air Warfare corresponding to the chapter on the law and usages of war on land in the "Manual of Military Law," certain recent international agreements concerning the prohibitions of the use of poisonous gases and of bacteriological warfare, the treatment of wounded and sick, and of prisoners of war, will be found in an appendix to this Manual.



The Pylon

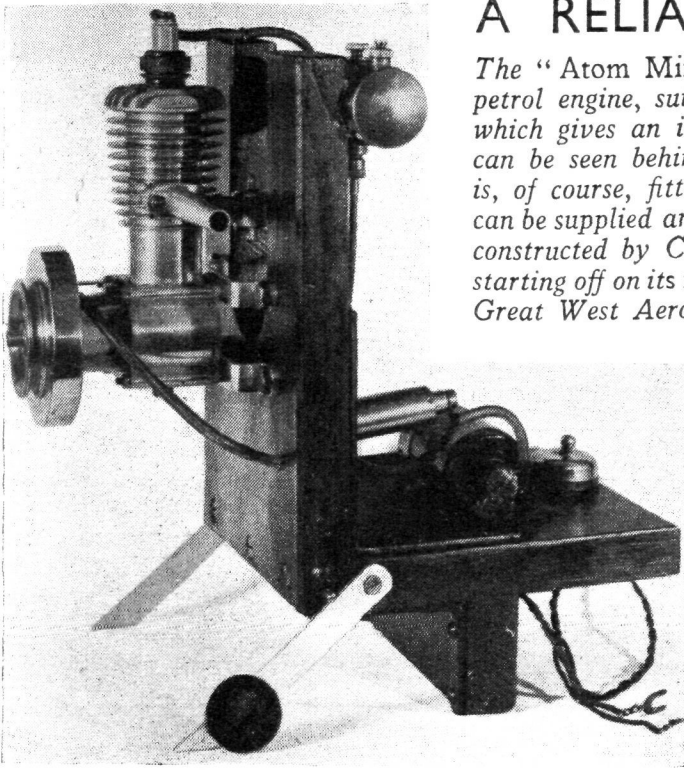
THE de Havilland Technical School have produced the second number of their magazine "The Pylon." An interesting article on Metal Construction in France, by M. Langley, A.M.Inst.N.A., A.M.I.Ae.E., points out that though metal construction has taken the place of wood in larger machines, there is still a tendency towards wooden construction in machines of under 3,000 lb. in weight. Admiral Mark Kerr, in an historical article, raises an old question by asserting that Henry Farman was the first British subject to fly, and Mr. A. V. Roe the first Englishman to fly in his own country. Another interesting item is Impressions of Flying in Greece, by M. A. Benachi.

The Spartan "Cruiser"

SPARTAN AIRCRAFT, LTD., of Cowes, Isle of Wight, have just issued a well-got-up and interesting illustrated catalogue of their Spartan "Cruiser." This contains much of value to the prospective operator, particularly as it discloses the results of the past season's work with the Spartan Air Line between Heston and Cowes. During the five months' work, over 600 scheduled trips were made, and some 50,000 miles covered on charter work, while only two trips were cancelled on account of weather. Finally, a table of operating costs is given, showing that the cost per passenger mile, for a load of seven passengers, is only 1.28d.

A RELIABLE MODEL AERO ENGINE

The "Atom Minor." The upper illustration shows this small two-stroke petrol engine, suitable for use in model aircraft. Note the penny piece, which gives an idea as to the size of this engine. The little carburettor can be seen behind the exhaust "snout." For model aircraft an airscrew is, of course, fitted instead of the flywheel shown. The wooden test bench can be supplied and is really necessary. Below we show a model monoplane, constructed by Captain Bowden, fitted with the original "Atom" engine, starting off on its recent record flight of some ten minutes' duration at Fairey's Great West Aerodrome, when competing for the "Sir John Shelley Cup"



cylinder ribbed with ordinary heat diffusing fins. The crankcase cover on the driving side is box form (an improvement on the earlier model), and cylindrical. It contains two ball bearings of the Hoffman or Skefko ring type, which form, with their case, an extension of the crankcase, the bearings being thus allowed to run in oil. The lubrication is done by mixing oil with the petrol. The contact breaker is located on the exterior of the crankcase just behind the driving end of the crankshaft, and is operated by a cam on the shaft itself, which works a plunger up and down through the casing.

The "Atom Minor" can be used for model motor boats as well as for model aircraft. It is not cheap, the price of the complete engine being £10 10s., but nobody who has examined the engine and realised fully the amount of work that has been put into it can say that this price is extortionate. It is not Mr. Jones' intention to provide a cheap engine; his primary object is to supply an engine that is reliable, strong, and capable of giving good and long service; all the engines he supplies are fully tested on a bench and given a sufficiently long run to assure their reliability. The parts of this engine can be purchased separately, or a set of castings, or working drawings, the latter at the small cost of 10s. 6d. The fitting of the engine into a model aircraft should not be a very difficult problem to those who have studied the making of models.

It seems that the appearance on the market of engines for models will put model aircraft on a new footing, and open up all kinds of possibilities; so much so that regulations will have to be laid down as to where such models can be flown; it is obvious that they cannot be flown just anywhere, for a metal prop., even though it be only a foot long, can do considerable harm.

IT is a peculiar paradox that, with regard to mechanical contrivances, models give birth to the finished machine, and the finished machine in its turn is responsible for more models. These latter models are generally designed and manufactured for the benefit of the young, and, in that they do embody the primary principles of their larger brothers, are usefully educative.

There comes a time, however, when models become so interesting and clever that they cease to be the prerogative of the young and attract to them those of riper years. The writer not many years back visited a friend aged about 45 years. This friend had a son whom the writer interrupted studiously engaged in constructing a little truck out of a No. 1 Meccano. The father was found proudly surveying a beautifully-finished model of the Eiffel Tower, made out of a No. 6 Meccano and a few extra accessory parts.

Turning to matters aeronautical, we find a similar position. Model aeroplanes, a few years ago, were crude little articles roughly constructed, powered by elastic strands, and many of them incapable of sustained flight, even though advertised so to do. Children used to throw these models into the air hopefully, in public parks and other open spaces. Later on, boys of a more mature age began to study these models seriously, and very interesting were some of the results. Now model aeroplanes are beginning to get beyond the brains of youth, and fully-grown men with well-developed brains are becoming not only interested but intrigued. The man to whom the serious study of aeroplane models owes much is Mr. A. E. Jones, of 97, New Oxford Street, who has manufactured some very interesting and extremely clever models, and, what is more, has instilled his own enthusiasm into the minds of others—many others. Mr. Jones, some little time ago, realising that power by twisted elastic had its limitations, turned his attention to the petrol engine, and re-designed Mr. Westbury's successful little two-stroke engine. This little engine is named the "Atom Minor," and the other day Mr. Jones brought his improved version round to FLIGHT Offices to be photographed. The result is published on this page. What was not photographed, however, was the intriguing scene of Mr. Jones giving a demonstration run to practically the entire staff of FLIGHT, and by far the most interested spectator was the Technical Editor; incidentally, it is rumoured that a new appointment is shortly to be made on the staff of FLIGHT, that of Model Technical Editor! Anyhow, the interest displayed by the Technical Editor of FLIGHT is sufficient advertisement of the engine's qualities.

The "Atom Minor" is a two-stroke, single-cylinder engine, and with coil, condenser, and petrol tank weighs under two pounds. The cylinder bore is 1 in. and the stroke $1\frac{1}{8}$ in. It develops $1\frac{1}{5}$ h.p. at about 3,500 revs. The crank case and piston are of aluminium alloy. The



THE ADEN COMMAND

IT is only occasionally that news of air activities at Aden reaches the public in this country. The Air Officer Commanding there at present is Group Capt. O. T. Boyd, O.B.E., M.C., and this command comprises No. 8 (Bomber) Squadron (Fairey III F.) an armoured-car section, and the Aden Protectorate Levies. The following is some account of their activities during the past summer.

The Officer Commanding, British Forces in Aden, and the Acting Political Secretary proceeded to Mukalla by air on March 8, where they joined the Chief Commissioner and his party, who had arrived there in H.M.S. *Penzance* on March 7. On the same day, the whole party, including the Commander of H.M.S. *Penzance*, flew to Wadi Hadhramaut in five Fairey III F.'s and landed at Shibam, in Qu'aiti territory, via Terim. They spent the night in Shibam, and proceeded next day by car down the Wadi to Terim, in Kathiri territory, halting *en route* to visit the Kathiri Sultan at Sayun. After spending the night at Terim, where they were entertained by the Al Khaf family of Seyyids, they returned to Shibam on the morning of March 10, from where the Commissioner and the *Penzance* party were flown back to Mukalla, and the remainder direct to Aden.

Until recently, the interior of the Hadhramaut has always been more of a closed book than many other parts of Arabia, the hostility to Europeans being an effective bar to systematic exploration. In 1929, the R.A.F. commenced reconnaissances over the country, operating from Mukalla, and in the latter part of 1932, landing grounds were established at Shibam and at Hauta, at the western end of the Wadi. In November, 1932, the Officer Com-

manding, British Forces in Aden, landed with three aircraft at Shibam and visited Seyun and Terim. The visit described above is of interest as being the first official tour of the interior by the political administration.

Air survey photography of previously unmapped areas of the Aden Protectorate was begun during May. The first area to be photographed was a block bounded by a line adjoining Laudar-Mis Hal-Jebel Bin Qomata-Jebel Thamer. The position of the first two of these points was astronomically fixed in April, 1932, while the last two are trig. points fixed during a survey carried out by the Survey Department of India between 1894 and 1904. Survey photography of the Aden Settlement Area was also undertaken during May for the purpose of obtaining data for the preparation of a new town map of Aden.

A series of small raids and counter-raids between the Lower Yafa and Fadhlī tribes led to a concentration of armed tribesmen between Halima and Dirjij and to steps by the Lower Yafa to rebuild a fort at Hasn al Halima. An aircraft of No. 8 (Bomber) Squadron flew over Al Husn and dropped messages calling on the tribes to cease fighting and on the Lower Yafa Sultan to stop building on Husn al Halima and to withdraw his troops. It was reported in June that fighting had ceased and that the matters in dispute between the opposing tribes had been referred to the arbitration of the Sultan of Lahej.

On receipt of a report that certain of the Ahl Shu'ar (under the Amir of Dhala) had occupied the village of Shuku in the Mafahi section of Upper Yafa, a letter was dropped by air on the Sha'iri Sheikh at Al Malaha advising him to withdraw his men at once, and the advice was acted upon.

ARMY CO-OPERATION

AS a rule not very much is heard by the outside public of the doings of the Army Co-operation squadrons, and this is a pity, for the officers and men of these squadrons are highly-trained specialists, the number of the squadrons is small (there are only five of them for the whole Army in the United Kingdom), and during the summer their work is exacting and incessant. The following notes give some account of their activities during the past summer.

During recent months the main interest has been in artillery practice camps, and in battalion training. The artillery have been at Okehampton, Redesdale, Buddon, and the Salisbury Plain practice camps, and at all of these air observation has been provided. Such assistance as is possible has been given in battalion training, but little can be done in schemes of such a small nature.

No. 26 (A.C.) Squadron from Catterick has had a flight co-operating with the Scottish Command. Owing to the large area covered and the keenness shown by the personnel to see something of the Royal Air Force, the flight has had a very strenuous time, both in actual co-operation and in travelling from place to place, and the R/T tender has actually travelled over 4,000 miles in the two months. The two flights remaining at Catterick took part in the 5th Division Signal Exercise.

Nos. 4 and 13 (A.C.) Squadrons co-operated with the Staff College, Camberley, during their annual staff duties exercise with Signals. The squadrons were based on Farnborough and Odiham (representing aerodromes in Sussex), but nearly all the work was done from an

advanced landing ground at Oxney Farm, near Bordon, where the pilots landed before and after each reconnaissance. A considerable amount of photography has been carried out, including a large number of photographs for the Staff College, Camberley, in connection with their Winchester exercise and photography of railway work at Longmoor for the Railway Training Centre, R.E. Demonstrations and co-operation with O.T.C. units during their summer field days have been provided, and there has been quite a considerable demand for this work, arrangements being usually made by the Air Force Liaison Officers to the various schools.

No. 4 (A.C.) Squadrons provided a flight during July at Weston Zoyland to co-operate with the 2nd Anti-Aircraft Brigade, R.A., and a further flight went there on July 31 to work with the 1st Anti-Aircraft Brigade.

No. 16 (A.C.) Squadron has co-operated in two exercises, one a Signal exercise by the Southern Command, and the other an Artillery exercise by the 3rd Division, and also gave air experience to 59 officers of the Indian Army during their visit to Salisbury Plain to witness demonstrations.

No. 2 (A.C.) Squadron have provided targets by day and night for Territorial Searchlight and Anti-Aircraft units, which have been attending camp during the period.

The Balloon Centre has carried out the normal co-operation with the artillery, spending 52 hr. in the air and giving air experience to both Regular and Territorial officers.

ARMY OFFICERS FOR THE ROYAL AIR FORCE

THE conditions of secondment of Regular Army officers to the R.A.F., as agreed between the Army Council and Air Council, are set forth in Air Ministry Orders issued on October 25. The object is to produce for Army co-operation squadrons a reserve of pilots who are also trained as Army officers, and to disseminate within the Army a knowledge of the work of the R.A.F.

Seconded officers must have a minimum of four and not more than six years' commissioned service. Not more than eight will be seconded each year, and the total seconded at any given time will not exceed 32. The period will be for four years, including preliminary training. Officers will be granted temporary commissions as flying officers, and will take rank and command accord-

ingly, with honorary rank corresponding to any relatively Army rank held. They will not be eligible for selection for permanent commissions in the R.A.F. Selected officers will be permitted to be seconded for a further period of two years, provided they have served with the Army for at least two years after the original period terminated. Seconded officers will wear the uniform of their corps or regiments, with R.A.F. "wings" on service dress as soon as they have qualified as pilots.

Names of officers volunteering will be forwarded to the War Office, and the recommendations of C.O.s, brigade commanders, etc., will be submitted with the applications, which must be forwarded irrespective of whether it is considered that an officer can be spared or not. The final decision whether an individual officer can be spared will rest with the Army Council.

THE ROYAL AIR FORCE

London Gazette, October 24, 1933

General Duties Branch

The follg. Acting Pilot Officers on probation are confirmed in rank and graded as Pilot Officers (September 2):—W. G. Devas, E. P. P. Gibbs, G. J. Grindell, H. V. Kennedy, P. C. Lawrence, J. S. Leslie, J. S. McLean, G. A. M. Pryde, D. S. Radford, J. R. L. Rumsey, P. H. P. Simonds, C. H. T. Warner (Sec. Lt., R. Fus., T.A.).

The follg. Acting Pilot Officers on probation are graded as Pilot Officer on probation:—P. B. H. Butler, W. B. Fleming, D. W. H. Gardner, E. L. A. Walter (September 2); E. H. Wheelwright (October 6).

The follg. Pilot Officers are promoted to rank of Flying Officer:—G. E. Macdonald (September 11); D. I. Coote (October 8).

Flt.-Lt. C. H. Turner is placed on half-pay list, scale B, from October 2 to October 23, inclusive. The follg. are transferred to Reserve, Class A (October 25):—Flt.-Lt. A. F. Lingard, F/O. K. D. Knocker.

F/O. P. K. Robertson relinquishes his commn. on account of ill-health (May 25). (Substituted for *Gazette* May 30.)

Medical Branch

F/O. J. F. Sandow, M.R.C.S., L.R.C.P., is granted a permanent commn. in this rank (October 25).

Chaplains' Branch

The Rev. C. A. Smith relinquishes his short service commn. on completion of service (October 20).

ROYAL AIR FORCE RESERVE RESERVE OF AIR FORCE OFFICERS

General Duties Branch

A. M. Mitchell is granted a commn. in Class A as a Flying Officer (Hon. Flt.-Lt.) on relinquishing his commn. in the Auxiliary Air Force, on completion of service (September 29); C. E. Kelly is granted a commn. as Flying Officer in Class A (October 14); F/O. H. J. Ellam is transferred from Class A to Class C (September 29).

SPECIAL RESERVE

General Duties Branch

P/O. on probation A. Andrew is confirmed in rank (August 14); F/O. J. F. Bristow relinquishes his commn. on completion of service (September 8).

AUXILIARY AIR FORCE

General Duties Branch

No. 603 (CITY OF EDINBURGH) (BOMBER) SQUADRON.—Flt.-Lt. A. M. Mitchell relinquishes his commn. on completion of service (September 29).

ROYAL AIR FORCE INTELLIGENCE

Appointments.—The following appointments in the Royal Air Force are notified:—

General Duties Branch

Group Captain W. J. Y. Guilfoyle, O.B.E., M.C., to H.Q., Central Area, 1.10.33, for duty as Senior Air Staff Officer.

Squadron Leaders: F. P. Adams, to H.Q., Central Area, 10.10.33, for Equipment (Engineer) Staff duties. A. Durston, A.F.C., to H.Q., Central Area, 1.10.33, for duty as Senior Personnel Staff Officer. J. S. T. Fall, D.S.C., A.F.C., to Station H.Q., Andover, 17.10.33, for Flying duties. S. B. Harris, D.F.C., A.F.C., to H.Q., Central Area, 1.10.33, for Air Staff duties. C. Turner, A.F.C., to No. 10 (B) Sqdn., Boscombe Down, 14.10.33, for Flying duties, vice S. Ldr. D. Colyer, D.F.C., J. Duminy, to H.Q., Aden Command, 18.10.33, for Personnel Staff duties, vice F/Lt. F. W. Long.

Flight Lieutenants: J. B. Barrett, to H.Q., Central Area, 10.10.33. E. E. Fallick, to No. 18 (B) Sqdn., Upper Heyford, 11.10.33. F. H. D. Henwood, D.F.C., to H.Q., Central Area, 5.10.33. J. W. Hutchins, to No. 2 Aircraft Storage Unit, Cardington, 18.10.33. N. W. F. Mason, to Station H.Q., Andover, 18.10.33. H. W. St. John, D.F.C., to H.Q., Fighting Area, Uxbridge, 11.10.33. D. S. Allan, to No. 1 Armoured Car Co., Hinaidi, Iraq, 18.10.33. A. J. Brister, to H.Q., Iraq Command, Hinaidi, 18.10.33. S. O. Bifton, to Aircraft Depot, Iraq, Hinaidi, 18.10.33. W. G. Cheshire, to Aircraft Depot, Iraq, Hinaidi, 18.10.33. V. H. Clift, to Station H.Q., Hinaidi, Iraq, 18.10.33. A. C. Evans-Evans, to No. 84 (B) Sqdn., Shaibah, Iraq, 18.10.33. R. C. Hancock, to No. 5 (A.C.) Sqdn., Quetta, India, 18.10.33. L. T. Keens, to H.Q., Aden Command, 18.10.33. P. L. P. Marett, to No. 11 (B) Sqdn., Risalpur, India, 18.10.33. J. R. Mutch, to Aircraft Depot, Iraq, Hinaidi, 18.10.33. T. B. Prickman, to No. 30 (B) Sqdn., Mosul, Iraq, 18.10.33. W. E. Purdin, to No. 8 (B) Sqdn., Khormaksar, Aden, 18.10.33. J. R. Wolley, to H.Q., Iraq Command, Hinaidi, 18.10.33. J. M. Glaisher, D.F.C., to Station H.Q., Manston, 18.10.33. C. H. Johnson, to R.A.F. Training Base, Leuchars, 20.9.33.

Flying Officers: E. J. Corbally, to H.Q., Iraq Command, Hinaidi, 18.10.33. D. Y. Feeny, to No. 1 Armoured Car Co., Hinaidi, Iraq, 18.10.33. B. A. Fraser, to H.Q., Iraq Command, Hinaidi, 18.10.33. E. V. Knowles, to No. 55 (B) Sqdn., Hinaidi, Iraq, 18.10.33. G. E. W. Parish, to H.Q., Iraq Command, Hinaidi, 18.10.33. G. K. Tulloch, to Aircraft Depot, Iraq, Hinaidi, 18.10.33. M. B. Edwards, to R.A.F. Base, Gosport, 20.10.33.

Pilot Officers: V. W. Glasheen, to No. 58 (B) Sqdn., Worthy Down, 4.10.33. H. B. Hurley, to No. 32 (F) Sqdn., Biggin Hill, 6.10.33. A. C. Mills, to No. 12 (B) Sqdn., Andover, 4.10.33. N. G. Mulholland, to No. 101 (B) Sqdn., Andover, 4.10.33. K. D. Salmon, to No. 58 (B) Sqdn., Worthy Down, 4.10.33. L. V. Spencer, to No. 18 (B) Sqdn., Upper Heyford, 4.10.33. S. P. A. Patmore, to Aircraft Park, India, Lahore, 12.10.33. H. R. Allen, to No. 28 (A.C.) Sqdn., Ambala, India, 18.10.33. W. D. Anderson, to No. 20 (A.C.)



Central Flying School, Royal Air Force "Coming of Age" Dinner

MARSHAL OF THE ROYAL AIR FORCE LORD TRENCHARD will preside at the "Coming of Age" dinner of the Central Flying School, Royal Air Force, which will be held at the May Fair Hotel, London, on Friday, November 24. The dinner has been arranged in order to celebrate the 21st anniversary of the formation of the School (at Upavon) in 1912. The School is now stationed at Wittering, Northants. It is hoped that amongst the guests attending the dinner will be Lord Londonderry, Secretary of State for Air, Lord Mottistone, Secretary for War when the C.F.S. was formed, Sir Philip Sassoon, Under-Secretary of State for Air, and Sir Christopher Bullock, Secretary of the Air Ministry. The Organising Committee has been unable to get into touch with many officers of the Royal Flying Corps, Royal Naval Air Service and Royal Air Force, who are eligible to attend, and desire it to be known that the qualifications for attendance are as follow:—

All officers who were on the staff of the C.F.S. or who attended courses at the C.F.S. before August 4, 1914. All officers of the rank of Captain and upwards who were on the staff of the C.F.S. during the war.



All officers who have been on the staff of the C.F.S. since the war period, i.e., since January 1, 1920.

The Committee would be glad if all officers coming within these categories who wish to be present at the dinner would communicate at an early date with The Secretary, C.F.S. Dinner Committee, Central Flying School, Wittering, near Peterborough. It is hoped that as many as possible will make a special endeavour to attend.

British Air Attache in Paris

GROUP CAPT. R. M. FIELD, of the Air Armament School, Eastchurch, is succeeding Group Capt. R. J. Bone as British Air Attaché in Paris.

Japanese and American Air Strength

It is reported that Japan has decided, not only to refrain from cutting down her armed forces, but to increase her navy and her air squadrons. It is likewise expected that the United States will refuse to reduce her strength in the air. America may, it is surmised, suggest that her action ought not to restrain European countries from disarming in the air. As the little boy said, "we don't think."

AIR POST STAMPS

By DOUGLAS ARMSTRONG

(Editor of "Stamp Collecting")

Another British Air Stamp

WHILE the prospect of an official air mail stamp for Great Britain seems to be remote as ever, the number of quasi-official British aero-labels grows apace. An unexpected addition made its appearance at the end of October under the auspices of Provincial Airways, Ltd., in connection with the reorganised London-Southampton-Plymouth service. It is an oblong vignette printed in orange and blue and of the nominal value 3d. At the top of the design, between tablets bearing bold figures "3d." in white upon a solid ground of orange appears an aeroplane in blue in conjunction with the name of the issuing concern. Across the centre extends the inscription "West Country Air Service," surmounting three miniature views of the places served, i.e., London, represented by the Houses of Parliament; Southampton, by an ocean liner and an aeroplane overhead, and Plymouth, by the Hoe, with the names below, separated by crosses. These vignettes, gummed and perforated, are apparently used to collect the special air post fee in the same way as those recently circulated by the Great Western Railway Company and International Air Lines, Ltd., making three varieties in all created in the British Isles within the present year.

Picturesque Greek Issue

One of the most attractive series of pictorial air mail stamps that has been produced as yet arrived from Greece on October 10, in substitution for that which has been current since 1926 in the air mail service operated by the Compania Aeroespresso Italiana between Italy, Greece, Turkey and Rhodes under contract with the Governments concerned. Although for the time being their status is merely semi-official, they are on sale by the Hellenic Post Office, and are exclusively employed to denote air post charges over this system. Engraved and printed in the admirable manner of the Bradbury, Wilkinson atelier at New Malden, the subjects of the several designs embraced—an aviator behind the propeller of his machine (50 lepta, green and black), ruins of the Temple of Neptune at Corinth, with a flight of aeroplanes beside it (1 drachma, blue and orange), an aeroplane over the town of Hermoupolis, Syria, the site of an abandoned landing place (3 dr., brown and violet), an allegory of Flight (5 dr., blue and yellow), a map of the Brindisi-Athens-Istanbul-Rhodes air line (10 dr., red and black), the head of Mercury (20 dr., green and black) and another allegorical picture (50 dr., brown and blue). On the appearance of these stamps the former lithographic set was simultaneously withdrawn from circulation. A second series of "official" air stamps is impending in the same denominations to be employed over the air mail routes under direct government control.

Latest Zeppelin Post Stamps

Both Germany and the U.S.A. have provided distinctive stamps for the special air mail carried by the airship *Graf Zeppelin* upon her latest triangular voyage to Brazil, the United States and back to Europe, calling *en route* at the Century of Progress Exposition in Chicago. So far as the German issue is concerned, this consists of the three values in the existing type showing the dirigible passing over a terrestrial globe between the two Continents, viz., 1 mark carmine, 2 mk. ultramarine, and 4 mk. sepia, brought up to date by the addition of the inscription "Chicagofahrt Weltausstellung, 1933," in diminutive characters in the upper left-hand corner of the design.

The new American "Zepp" stamp is, however, of new design and of single value 50 cents in traverse rectangular format, depicting the airship over the Atlantic, flanked on the right by a view of the "Zeppelin" hangar at Friedrichshafen, and on the left by the towers of the Federal building at the Chicago World's Fair, the whole beautifully engraved and printed in light green. First placed on sale in New York on October 2, it was to be withdrawn when the *Graf Zeppelin* was due to leave Akron, Ohio, for home on October 30.

Holland-Java Air Stamps

In connection with the projected non-stop air mail flight from Holland to the Dutch Indies, a special triangular air post stamp of 30 cents has been provided at either end for franking letters transmitted by the "Pandar" machine, which is expected to accomplish the trip in 3½ to 4 days.

This will be in all probability the last aero stamp to be issued in the Dutch Indies, as it has been decided to dispense with distinctive stamps for air-borne correspondence in future, and to use up the balance of the stocks for ordinary postal purposes.

Air Stamp Prices

Air post stamps are about the only exceptions to a general and drastic marking down of values in a new catalogue of postage stamps of the British Empire, just published (Regent Stamp Catalogue, Robson Lowe, Ltd., 5s.). Under "Newfoundland" we find the "Hawker" air mail stamp quoted at £350 unused and £180 on flown cover, whilst the still more elusive manuscript "Martinsyde" variety figure at £500 on cover, but is not quoted in unused condition. The market, we are told, is "steady, and likely to rise." The "Alcock" trans-Atlantic air post stamp is possibly under valued at 30s. mint and £17 10s. "flown," although it is stated that the market has "fallen recently." The mint "De Pinedo" stamp is listed at £400, whilst the "flown" cover seems cheap at £30, compared with the "Columbia" at £47 10s. The latter stamp, unused, is quoted at £60. Many air post collectors would be glad to pick up the latest "Balbo" flight provisional on cover for the same price as the unused stamp, viz., 30s. Generally speaking, however, the trend of values is upwards, confirming the view that air stamps are by far the most popular feature of the philatelic market to-day.

Employment for Ex-Airmen

THE Air Council point out that it is very desirable that all units should help in giving publicity to the question of providing civilian employment for ex-airmen, and it is considered that displays, tattoos, tournaments, band concerts, or any Service performances which are attended by civilian audiences afford valuable opportunities for such publicity, as the audiences must necessarily include numbers of potential employers. The Council, therefore, hope that whenever C.O.'s are giving approval for *personnel* under their command to give such performances they will endeavour to arrange that suitable reference to the question of employment is made in the programme, and that, if practicable, posters are displayed at the place of the performance.

PUBLICATIONS RECEIVED

- Airman's Escape.* By Hermann Köhl. Translated from the German by C. W. Sykes. London: John Lane, The Bodley Head, Ltd. Price 8s. 6d. net.
- Schneider Trophy.* By Wing Commander A. H. Orlebar, A.F.C. London: Seeley, Service and Co., Ltd. Price 12s. 6d. net.
- Conditions and Prospects of United Kingdom Trade in India, 1932-1933.* Report by Sir Thomas M. Ainscough, C.B.E. Department of Overseas Trade, No. 557. London: H.M. Stationery Office, W.C.2. Price 3s. 6d. net.
- Combat. A Motor Racing History.* By Barré Lyndon. London: William Heinemann, Ltd. Price 7s. 6d. net.

NEW COMPANIES REGISTERED

- ECONOM SYNDICATE, LTD., 1, Broad Street Place, E.C.2. Capital £2,000 in £1 shares. Objects, to acquire and turn to account interests in any invention relating to economising in the use of petrol by internal-combustion engines and the improvement in the running of such engines, etc. Solicitors: Mawby & Barrie, 55/61, Moorgate, E.C.2.
- F. D. LOMAS & SON, LTD., Datchelor Place, Datchelor Street, Camberwell, S.E.5. Capital, £5,000 in £1 shares. Acquiring the business of a sheet metal worker carried on by Fredk. D. Lomas at Datchelor Place, Datchelor Street, Camberwell, S.E.5, sheet metal workers and manufacturers of motor car and aeroplane bodies and parts of vehicles of all kinds, etc. Directors: Fredk. D. Lomas and Samuel L. Cook, both of Datchelor Place, Datchelor Street, Camberwell, S.E.

AERONAUTICAL PATENT SPECIFICATIONS

Abbreviations: Cyl. = cylinder; i.c. = internal combustion; m. = motor.
(The numbers in brackets are those under which the Specification will be printed and abridged, etc.)

APPLIED FOR IN 1932

Published November 2, 1933.

9937. STANDARD TELEPHONES & CABLES, LTD., D'A. A. HODGSON, and H. LARNDER. Aircraft radio aerial equipment. (399,543.)
10111. VICKERS (AVIATION), LTD., and B. N. WALLIS. Construction of wings for aircraft. (399,555.)
16199. FAIREY AVIATION CO., LTD., and A. G. FORSYTH. Flexible shaft couplings, particularly for use on aircraft. (399,606.)
16467. W. R. TURNBULL. Aircraft propellers. (399,607.)

APPLIED FOR IN 1933

Published November 2, 1933.

2558. CIERVA AUTOGIRO CO., LTD. Aircraft having rotative sustaining means. (399,693.)
15035. E. BLOCHMANN and H. POHLMANN. Towing-arrangement for aircraft. (399,756.)

Personals.

PREPAID (18 words or less 3/6, then 2d. per word.)

Married.

FULLER-GOOD: BEECHING.—On October 21, 1933, at Holy Trinity, Brompton, FLIGHT-LIEUT. JAMES LAURENCE FULLER-GOOD, of Weybridge, to JOAN HELENA BEECHING, of Tunbridge Wells.

FRENCH: HORSFALL.—On October 26, 1933, very quietly, at St. James's Church, Spanish Place, London, FLIGHT-LIEUT. T. H. FRENCH, R.A.F., to MARY ELIZABETH SIBYLLA HORSFALL.

To be Married.

REYNELL: PARBURY.—The engagement is announced between RICHARD CAREW REYNELL, R.A.F., son of the late Mr. R. Carew Reynell and Mrs. Reynell, of Reynella, South Australia, and PAMELA, only daughter of Mr. and Mrs. Claud Parbury, of 20, Connaught Square, W.2.

WATT: TAWNEY.—The marriage arranged between MR. CHARLES ALPINE WATT, R.A.F., second son of Mr. and Mrs. C. A. M. Watt, of Buenos Aires, and MARV, second daughter of Capt. L. A. Tawney, R.N. (retired), and Mrs. Tawney, of Balarat, Parkstone, will take place on December 16.

Birth.

SAUNDBY.—On October 24, 1933, at 33, Mansfield Road, Reading, to JOYCE (née Rees-Webb), wife of WING COMMANDER R. H. M. S. SAUNDBY, R.A.F.—a daughter.

MISCELLANEOUS ADVERTISEMENTS.

Advertisements for this column should arrive at this office by Monday, 12 o'clock noon.

Special PREPAID Rates:—

18 WORDS or less, 3/6, then 2d. per word

Display Caps Throughout, 1/6 per line.

Personal Notices, Minimum 3/6, then 2d. per word.

Situations Wanted ONLY, 18 words, 1/6.

11d. per word after.

Box No., 1/- per insertion extra.

AGENTS

STANLEY, POPPLEWELL & FRANCIS, Chartered Patent Agents, 88-90, Chancery Lane, London, W.C.2. Telephone: Holborn 6393. Established 1879.

A. P. THURSTON & CO., Chartered Patent Agents, 329, High Holborn, W.C.1. Tel.: Hol. 1117.

F. J. CLEVELAND & CO., Chartered Patent Agents, 29, Southampton Buildings, London, W.C.2. Telephone: Holborn 5875-6.

KING'S PATENT AGENCY, LTD., 146A, Queen Victoria Street, E.C.4.—"Advice Handbook" and consultations free. 47 years' references. 'Phone: Central 0682.

GEE & CO. (H.T.P.) Gee Patent Agent for Great Britain, U.S.A., Canada, etc., Mem. Rad. S.G.B., A.M.I. Rad. E., 51-52, Chancery Lane, London, W.C.2 (two doors from Govt. Patent Office). 'Phone: Holborn 1525. Handbook Free.

PATENTS

THE Proprietor of British Letters Patent No. 335448, for an invention relating to "Improvements in Chaser Aeroplanes with Sighting Device for Firing both Forward and Rearward," is desirous of entering into negotiations for the commercial development of the invention either by way of sale outright or by licence.—For particulars in the first instance, apply to SHAW, BOWKER & FOLKES, Chartered Patent Agents, 8, Waterloo Street, Birmingham, 2.

FOR SALE

LONDON & PROVINCIAL AVIATION CO. LTD., 3, Thackeray Street, London, W.8. The Aviation Shop (BEHIND BARKERS). For all Aviation requirements.

WANTED, good offer for odd copies of early numbers of "Flight," 1910-15; "The Aero," 1910-11; "The Aeroplane," 1911-17.—Box No. 4212, c/o FLIGHT, 36, Great Queen Street, Kingsway, London, W.C.2.



LEARN TO GO JUST Ring Croydon 3421 and arrange for an S.F.S. air-taxi to take you and your friends whither you will, at home or abroad. Cabin Aircraft from 1/- per mile—day and night.

SURREY FLYING SERVICES, LTD., CROYDON, and at Plymouth.

BY AIR — ANYWHERE

PENSHURST

ENSHURST FOR—
ENGINE OVERHAULS
NEW and SECOND-HAND SPARES
SERVICE by QUALIFIED ENGINEERS
HELPFUL ASSISTANCE
UNIQUE FACILITIES for QUICK REPAIRS
RENEWAL of CERTIFICATES of AIRWORTHINESS
SATISFACTION & MODERATE CHARGES

RY F. J. V. HOLMES, Penshurst
Aerodrome, Kent. Tel. 21.

LIBERTY ENGINE

DYNAMOS 6v. 15 amps., reduction gear box attachment, Price 5s. carr. fwd. Coley Thermometers, Aircraft Instruments, and AVRO 504K. Spares, etc.

COLEY & ATKINSON, LTD.
ORDNANCE WORKS, KINGSTON - ON - THAMES.

AIR COVERS

IMPERIAL AIRWAYS

OFFICIAL SOUVENIR COVERS of the FIRST FLIGHT of the GREAT 7,200 MILES REGULAR To and From RANGOON Service

Now Available at from 2/- each
Set (25 Stages) for 50/-.

IMPERIAL AIRWAYS CALCUTTA SERVICE.

Souvenir Covers from 2/- each.

OTHER IMPERIAL AIRWAYS GREAT FLIGHTS.

Full Range in Stock from 2/- each.



Why not start a collection of these fascinating covers? They bear witness to a magnificent enterprise unrivalled by any other country and show how the Empire is being knit together. As an investment they are gilt-edged.

A. PHILLIPS,

Air Mail Specialist,

Four Dock St., Newport, Mon., England

Tel. 3789 & 3611. Est. 1895.

Quotations for 4,000
Sets and Packets.
140 pages.

1934 Price List of Postage Stamps

Ask for
Free Copy
Just Published

WHITFIELD KING & CO., IPSWICH, ENGLAND.

AIR TAXIS

AIR TAXIS, LTD., Air Port of London, Croydon, Surrey. 'Phone: Fairfield 4101. Night 'Phone: Wallington 3491.

TUITION

THE INTERNATIONAL CORRESPONDENCE SCHOOLS offer sound instruction in Aeroplane Design, Fitting and Rigging, and Aero-Engine Fitting and Rigging; also expert training for Ground Engineers (Categories A, B, C and D). All instruction is by correspondence. Write to-day for our "Aeronautical Engineering" Booklet.—**INTERNATIONAL CORRESPONDENCE SCHOOLS, LTD.,** Dept. 182, International Buildings, Kingsway, London, W.C.2. 18-26

IMPORTANT.

MANY QUALIFIED "B" Licence Pilots can obtain Positions in the future if they hold the Air Ministry's Wireless Licence. Pilots who intend taking up Flying as a career should first train for the Air Wireless Licence.

The recognised Training Centre, with all the necessary equipment, is **THE LONDON TELEGRAPH TRAINING COLLEGE LIMITED** (Founded 1896), of 20, Penywern Road, Earl's Court, London. Telephone, FLAXman 8721. 8-13

AERONAUTICAL ENGINEERING

AERONAUTICAL ENGINEERING TRAINING providing complete practical Works and Aerodrome experience for administrative side of Civil and Commercial Aviation. Students accepted in first instance for probationary term only. Day and Residential.

Syllabus from

THE COLLEGE OF AERONAUTICAL ENGINEERING
Chelsea, S.W.3

FIVE FIRST PLACES.

A REMARKABLE ACHIEVEMENT.

At the Associate Membership Examination of The Royal Aeronautical Society, held in December, 1932, students of The T.I.G.B. gained FIVE FIRST PLACES in their respective subjects, and also FIRST PLACE in the whole Exam.

The T.I.G.B. is the only Institution of its kind approved by The Society.

Write to-day for "The Engineer's Guide to Success"—144 pages—Free—which gives full particulars of The T.I.G.B. Courses in Aeronautics, contains the widest choice of engineering courses in the world, and shows you how to qualify for A.F.R.Ae.S., Air Ministry Licences, A.M.I.Mech.E., A.M.I.E.E., etc. The T.I.G.B. guarantees training until successful.

THE TECHNOLOGICAL INSTITUTE OF GREAT BRITAIN,

37, Temple Bar House, London, E.C.4.

(Founded 1917. 19,000 Successes.)

CONSULTANTS

THE CIE. GEN. TRANSSAHARIENNE, 66, Victoria Street, S.W.1, can give particulars and advice to Aviators contemplating flight to South or West Africa via Sahara Desert Route.

MAGNETOS

AIRCRAFT MAGNETO REPAIRS. Certified by the Air Ministry.—**W. GREENHALGH,** 64, Seel Street, Liverpool. 'Phone: Royal 4733.

AIRCRAFT UPHOLSTERY

L. A. RUMBOLD AND CO., LTD., for Aircraft Furniture in Elektron and M.G.7. Cabins completely upholstered. Special work quoted.—Kingsgate Place, N.W.6. Tel.: Maida Vale 3772.

GLIDING

IF you are interested in GLIDING obtain the full blue prints of The Dickson Glider, price 30/- from FLIGHT OFFICE, 36, Great Queen Street, Kingsway, London, W.C.2.

Use **AUTOMATIC** Standard equipment on the D.H. Leopard Moth



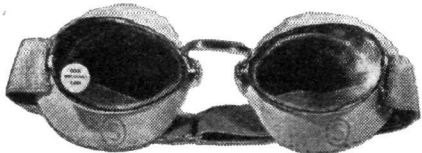
193
Elgin
Terrace
London,
W.9.

Save time by using the Air Mail.

CLOTHING

Discounts to Club Members and Readers of "Flight."

S. LEWIS'S of Flying, Racing, and Motor Clothing Fame,
27, Carburton Street



Flying Jacket, Short Pattern, Fitted Wool Collar and Cuffs, Zip Fastener, front, 45/-, 50/-, 55/- Flying Helmets, Black or Brown, Chamois Lined, 15/-, 17/6. Flying Helmets, Fur Trimmed, Chamois Lined, 22/- Flying Boots, Zip Fronts, Lamb's Wool Lined, 47/6. Overboots, Short Pattern, Lamb's Wool Lined, 39/6. Leather Coats, Black or Brown, 62/6, 75/-, 85/-. Leather Coats, Ladies, all colours from 50/-. Pilots Gauntlets, Lined, filled Lamb's Wool Muffle, 12/6. Silk Underlining, Single, 2/6. Flying Suits, Lined, ready, Interlined Oilskin, Super Quality, 65/-. Goggles, Featherweight filled, Triplex, 7/6. Aviation Masks, Fitted Triplex, 12/6. Electrically Heated Chamois Waistcoats 20/-. Electrically Heated Undergloves, 12 Volts, 3/- pr. Electrically Heated Socks, 2/6 pr.

WAINWRIGHT'S FLYING HELMETS

Air Ministry pattern, lined chamois, Sorbo padded earphone pouches, 18/6. Earphones, 7/6. Triplex Goggles, 4/6. Special offer: Complete set, comprising Helmet, Earphones and Goggles, as above, 27/6. White or Fawn Drill Helmets, Sorbo padded earphone pouches, 9/6. White or Fawn Flying Suits, full length Zip fastener, 25/-. Winter weight Suits, lined Teddy fleece, interlined oilskin, full length Zip, 60/-.

SHEEPSKIN FLYING BOOTS.

Ex R.A.F. Lambswool Flying Boots, short pattern with Zip fastener, 12/6. Knee length, 17/6. Full length, 25/-.

AIR-TIGHT RACING GOGGLES.

Rubber-rimmed eyepieces, curved lenses, adjustable nosepieces, 6/6; Triplex lenses, 12/6; ditto Triplex with large moulded rubber cups, 21/-; ditto curved lenses, 30/-.

10% Discount to R.A.F. and Club Members.

WAINWRIGHT'S, 300-302, EUSTON ROAD, LONDON, N.W.1.

Telephone: Museum 6280.

AERIAL PHOTOGRAPHERS

AEROFILMS, LTD. Air Surveys—Aerial Photos taken of Factories, Estates, Aircraft in Flight, etc. Library of 35,000 Air Views.—Bush House, Aldwych, W.C.2. Telephones: Temple Bar 2614, 2165; and Showroom at Heston Airport.

AIR SURVEY

AIR SURVEY CO., LTD., Hayes, Middlesex, Telephone: 632 Hayes, Mdix. India Branch, Dum Dum, Calcutta.

AIRCRAFT CAMERAS

"EAGLE" AIRCRAFT CAMERAS and equipment for survey photography and Naval and Military requirements. Specialists in Air Photographic Apparatus. Hand Held Cameras.—Pistol Cameras for air snapshots. Full particulars from Manufacturers and Patentees.—WILLIAMSON MANUFACTURING CO., LTD., Litchfield Gardens Willesden Green, London, N.W.10. Phone: Willesden 0073-4. Contractors to Air Ministry, Admiralty, War Office, Colonial and Foreign Governments. z

MODELS AND PARTS

A. E. JONES, LTD.

The Original House for Model Aeroplanes and Accessories. Quality always of the highest standard. Price list free.—97, New Oxford Street, London, W.C.1. Tel.: Temple Bar 6350.

MODEL AIRCRAFT KITS.

THE MODEL AIRCRAFT STORES,
133, Richmond Park Rd., Bournemouth.

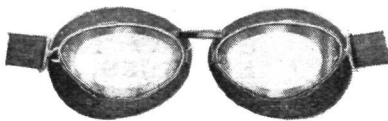
For all Materials, Blueprints, Kits, Rubber, Propellers etc. Write for Lists.

WANTED

WANTED.—Bristol Cherub, or similar, with air-screw wheels about 450 x 60 axle; altimeter, airspeed indicator seat, windscreen, etc.—Box No. 4217, c/o FLIGHT, 36, Great Queen Street, Kingsway, London, W.C.2.

D. LEWIS LTD.

10 per cent. Discount allowed to R.A.F. Officers and Club Members.



FLYING OR RACING GOGGLES, fitted with adjustable nose-piece, flat sponge rubber cushions and safety glass lenses. Ventilated eyepieces ... 24/- per pair.

GOGGLES, Triplex, with sponge rubber pads, 7/6, 15/- & 25/-

LUXOR GOGGLES, flat Triplex, 40/- & 50/- Ditto, with large curved lenses ... 77/6

SUEDE or LEATHER JACKETS, full length, open-ended Zip ... 37/6

FLYING HELMETS, White or Khaki Drill ... 6/6, 8/6 & 10/6

BEST CHROME LEATHER HELMETS, Air Ministry pattern, black or tan, chamois lined, sorbo padded phone pockets ... 15/- & 22/6

EARPHONES, flat type, chromium plated ... 7/6

WHITE OR KHAKI FLYING SUITS, Zip fastener ... 25/- & 30/- Button fronts ... 21/-

LEATHER COATS, R.A.F. pattern, chrome leather, fleec lined ... 135/- Slightly soiled ... 63/-

COMBINATION FLYING SUITS, fur collar, 60/-; also models with Zip fasteners.

SHEEPSKIN FLYING BOOTS, lambswool lined, with Zip fastener ... 47/6 Thigh high ... 84/-

WRITE FOR FULLY ILLUSTRATED CATALOGUE POST FREE.

(No discount allowed on Luxor Goggles).

ACTUAL MANUFACTURERS. TRADE SUPPLIED—WRITE FOR QUOTATIONS.

D. LEWIS, LTD.

(Dept. F.)

124, GT. PORTLAND ST. LONDON, W.1.

Tel. Museum 4314. Tel. Aviahit, Wesdo, London.

Sole Agents for Belgium and Northern France: Societa "Aera," Aerodrome der Deurne, Antwerp.

Sole Agents for Holland and the Dutch Colonies: E. PELGER, Prinsestratt 33 & 35, Den Haag.

Before renewing the C. of A. renew with

WELLWORTHY PISTON RINGS

"The Choice of the Expert"

WELLWORTHY LTD., Piston Ring Specialists, London, Birmingham & Lynton. Service Depots—London: 89, Blackfriars Road, S.E.1. Midlands: Wellworthy House, Suffolk Street, Birmingham.

FINANCIAL

OPPORTUNITY to enter Civil Aviation at minimum cost. Training as Commercial Pilot, "B" Licence, and Ground Engineer, "A" and "C" Licences, on Apprenticeship basis. Premium £150.—Write or call UNIVERSAL AIRCRAFT SERVICES, LIMITED, Witney Aerodrome, OXON. Phone: Witney 170.

AIRCRAFT & ENGINES FOR SALE

HENLYS LTD.

ENGLAND'S LEADING AIRCRAFT AND CAR AGENTS.

AGENTS FOR THE

AVRO CADET

We Offer You:—

£150 **MARTLET.** GENET II engine. Standard equipment. Compass. No hours since top overhaul.
£395 **BRAND NEW SPARTAN ARROW.** Hermes II entirely rebuilt engine. Triplex glass windscreen. Dual control.
£1,195 **PERCIVAL GULL.** Gipsy Major engine. Large tanks. Navigation lights. Turn and Bank Indicator. Pitch Indicator. Clock. Compass. 60 hours since new. 9 months' C. of A.

MAY WE SEND YOU PARTICULARS OF OUR FIFTEEN USED AIRCRAFT?

Heston Airport, Hounslow, Middx.

Phone: Hayes 410.

Woodford Aerodrome, Manchester.

Phone: Bramhall 63.

PHILLIPS & POWIS AIRCRAFT (READING) LTD.

Prompt Deliveries.

Deferred Terms.

Exchanges.

Offer the following aircraft:—

£200 **KLEMM SALMSON.**—Fitted with wheel brakes, compass. New 12 months C. of A.

£225 **AVIAN CIRRUS MK. II.**—Modified up to date. Fitted with Compass. Hours flown since C. of A., 29 hrs. C. of A. Aug./34.

READING AERODROME.

Sonning 114/5.



NORMAN EDGAR (WESTERN AIRWAYS) BRISTOL AIRPORT

offers the following aircraft at attractive terms:

£495 **GIPSY II MOTH.**—Wooden fuselage. Slots. Airwheels. C. of A., May, 1934. Engine just completely overhauled. Smart duo blue colour scheme. Total airframe hours, 220. Engine, 230. All modifications carried out. An exceptional machine.

£345 **GIPSY I MOTH.**—Metal fuselage. Slots. Slot-locking device. Airwheels. C. of A. November, 1933. Compass. All instruments. Repainted dark blue and silver. In splendid condition throughout.

AND ONCE AGAIN—ONE OF THE FINEST LIGHT AIRCRAFT EVER PRODUCED AT £135.

D.H. 53. Single seat monoplane. Bristol Cherub engine. C. of A., October, 1933. Engine, 30 hours only since overhaul. Total hours, 67. Airframe total hours, 117. Recently repainted green and silver. New propeller. Cruising speed, 70 m.p.h., very low landing speed. Consumption 24 galls. per hour. This little machine is in magnificent condition, both internally and externally.

DEMONSTRATIONS WILLINGLY.

Tel.: 41165, Bristol.

Kindly mention "Flight" when corresponding with advertisers.

Air Service Training Limited

THE LEADING AERONAUTICAL TRAINING CENTRE OF THE WORLD

■ FLYING ■ ENGINEERING ■ NAVIGATION ■ WIRELESS ■
BRITAIN'S AIR UNIVERSITY HAMBLE, SOUTHAMPTON

AST73C

AIRCRAFT & ENGINES FOR SALE

FOR SALE or Charter: AMPHIBIAN FLYING BOAT, Cutty Sark Gipsy II engines. C. of A. May, 1934.—Apply, R. H. STROCKEN, Dorland House, 18, Regent Street, W. Telephone: Whitehall 8845.

FOR SALE.—C.rrus III Moth D.H. C. of A. July 15/34. Slots, metal aircrew. Best offer accepted near £300.—Box No. 4219, c/o FLIGHT, 36, Great Queen Street, Kingsway, London, W.C.2.

FOR SALE.—Gipsy II Wooden Moth. Slots, Extra Front Tank, Compass, instruments in front cockpit. All modifications. Air Wheels. C. of A. expires August, 1934. Price £475.—BAILEY, Cardiff Aeroplane Club.

SPORTS AVIAN.—Maintained by Manufacturers and in exceptional condition throughout. Full set of instruments, compass, etc. Total flying hours 460. Mark II Hermes Engine. C. of A. to 26/4/34. Dark Blue and Silver colour scheme. Price £400 or near offer.—Box No. 8548, c/o FLIGHT, 36, Great Queen Street, Kingsway, London, W.C.2.

SCHOOLS

THE DE HAVILLAND SCHOOL OF FLYING HATFIELD AERODROME, HERTS, OFFERS EXPERT TUITION, every comfort—licensed restaurant, pleasant surroundings, a fine aerodrome, and individual attention. Trial lesson by appointment. Telephone, Hatfield 250.

FLYING INSTRUCTION.—Trial Lesson, 10s. 6d. Dual, 37s. 6d. per hour. Solo, 27s. 6d. per hour.—THE HAMPSHIRE AEROPLANE CLUB, Southampton. 'Phone: Eastleigh 170.

CAMBRIDGE.

Tuition, 30s. per hour. Air Taxis, from 6d. per mile. Special Flying Rates for members of H.M. Services and Air Force Reserve.

Dual or Solo, 25s. per hour (no other fees).
MARSHALL'S FLYING SCHOOL, LTD.,
CAMBRIDGE.

'Phone: Aerodrome 1631; Offices 215.
Aerodrome 1 mile from centre of Town.

PHILLIPS & POWIS SCHOOL OF FLYING. England's Most Popular School. No Entrance Fee. No Subscriptions. Five Moths. Experienced Instructors. Trial lesson, 15s. Learn to fly quickly and cheaply at Reading Aerodrome. Sonning 114.

SITUATIONS VACANT

WANTED.—One or two experienced Draughtsmen for detailing. Only those quick and accurate need apply.—Box No. 8556, c/o FLIGHT, 36, Great Queen Street, Kingsway, London, W.C.2.

CAPABLE Aeroplane Draughtsman required, London. Able to stress, but practical and experienced man essential.—Box No. 4211, c/o FLIGHT, 36, Great Queen Street, Kingsway, London, W.C.2.

SENIOR DRAUGHTSMAN for Aeronautical work.—Full details of experience, age and salary required to Box No. 4218, c/o FLIGHT, 36, Great Queen Street, Kingsway, London, W.C.2.

AIRCRAFT DRAUGHTSMEN.—Senior and Junior Aircraft Draughtsmen required immediately, stating details of experience, salary and when available.—Apply, CHIEF ENGINEER, The Fairey Aviation Co., Ltd., Hayes, Middlesex.

DETAIL DRAUGHTSMAN experienced in metal aircraft construction.—Reply, giving personal particulars, experience, references, salary, to Box No. 8555, c/o FLIGHT, 36, Great Queen Street, Kingsway, London, W.C.2.

PARTNERSHIP

INTERNATIONAL EGYPTIAN AVIATION RALLY. Owner of large aeroplane flying to this Meeting requires "B" pilot with means. Will share fifty-fifty in all prize money.—Box No. 8554, c/o FLIGHT, 36, Great Queen Street, Kingsway, London, W.C.2.

THE POBJOY ENGINE IS COMPACT

Small frontal area means low wind resistance, easier cooling, slim fuselage.

BROOKLANDS

The BEST ONLY IS GOOD ENOUGH
For full Information Write for Booklet "B."
Tel: Byfleet 436-7-8.
BROOKLANDS AERODROME, BYFLEET, SURREY.

OFFICIAL NOTICES

AIR MINISTRY, AERONAUTICAL INSPECTION DIRECTORATE

APPLICATIONS are invited for appointments as **EXAMINER.** Candidates must be between the ages of 25 years and 35 years on 13th November, 1933; they must have had a good general education and practical aeronautical engineering training and experience, and must possess a Ground Engineer's licence in Category "B."

The commencing salary will be £240 per annum, rising by annual increments, provided satisfactory service is given, to £329 per annum. The salary scale is, however, liable to review.

Applications, stating qualifications, experience and date of birth, should be addressed to reach the SECRETARY (S.2), Air Ministry, Adastral House, Kingsway, W.C.2, not later than 13th November, 1933.

SITUATIONS WANTED

DRAUGHTSMAN, apprenticed aircraft works. Drawing Office and works experience. Sound knowledge design of aircraft structures. Shortly disengaged.—Box No. 4210, c/o FLIGHT, 36, Great Queen Street, Kingsway, London, W.C.2.

GROUND ENGINEER, "A," "B," "C," "D," requires position of responsibility. 15 years' experience of manufacture, overhaul and maintenance at home and abroad. Single. Willing to go anywhere.—Box No. 4214, c/o FLIGHT, 36, Great Queen Street, Kingsway, London, W.C.2.

GROUND ENGINEER, "A" and "C" all types, thoroughly practical on A, B, C, D work, seeks situation in factory or operating; excellent reference.—Box No. 4215, c/o FLIGHT, 36, Great Queen Street, Kingsway, London, W.C.2.

"B" PILOT.—Club instructor desires post with private owner. Accept any salary winter. Willing go abroad. Excellent references.—Box No. 4216, c/o FLIGHT, 36, Great Queen Street, Kingsway, London, W.C.2.

AIR SERVICE DEPOTS

AN AIRCRAFT SERVICE DEPOT AT CROYDON.

ESTIMATES for all types of engine or aircraft work given on the spot. Specialists on Dragons and all D.H. products. Spares for aircraft, engines and electrical equipment always in stock. Aircraft bought, sold or exchanged.—ROLLASON AIRCRAFT SERVICES, CROYDON AERODROME. Tel.: Fairfield 6676.

Let us overhaul and store your Aircraft this Winter

CROYDON AIR SERVICES,

Waddon Aircraft Factory, Rothermere Rd., Croydon Aerodrome. Fairfield 5445.
Highest Workmanship. Lowest Prices.

AVRO 504K—C. of A. Overhaul and Storage until APRIL, £75.

LE RHONE to CLERGET conversions.
Overhauls to any make of AIRCRAFT or ENGINE.
Write for full particulars to Managing Director

"AIRCRAFT."

Official Journal of the Australian Aero Club.

1/- MONTHLY. SEPTEMBER NUMBER NOW READY, 1/1½ post free.—FLIGHT Office, 36, Great Queen Street, Kingsway, London, W.C.2.

AVIATION BOOKS

"Model Aeroplanes Simply Explained," By M. R. KNIGHT ... 1/2 Post Free

"Flying," By LT.-COL. W. LOCKWOOD MARSH, M.A. ... 1/2 Post Free

"Model Aeroplanes and Airships," By F. J. CAMM ... 1/2 Post Free

"The Model Aeroplane Manual" ... 1/9 Post Free

"International Aircraft Markings, Naval, Military and Civil," (Illustrated in Colour.) ... 2/9 Post Free

"The Splendid Book of Aeroplanes," By G. GIBBARD JACKSON ... 3/- Post Free

"Pilot's 'A' Licence," By JOHN F. LEEMING ... 3/9 Post Free

"Red Russia Arms," (Fourth Edition.) By JOHN BAKER WHITE ... 3/9 Post Free

"The Modern Diesel," (Second Edition.) ... 3/9 Post Free

"An Hour of Aviation," By CAPT. NORMAN MACMILLAN, M.C., A.F.C., etc. ... 3/9 Post Free

"How to Become an Air Pilot," By R. L. PRESTON ... 3/9 Post Free

Instruction Book for the Avro "Trainer" Type 621 ... 3/9 Post Free
With Notes on Rigging, Maintenance and Repair.

"Flying as a Career," By MAJOR OLIVER STEWART, M.C., &c. ... 3/10 Post Free

"Great Exploits in the Air," By F. A. MONK and H. T. WINTER ... 4/- Post Free

"The Pirate Airship," By JOHN NOV ... 4/- Post Free

"War Birds," The Diary of an Unknown Aviator. ... 4/- Post Free

"Above the Bright Blue Sky," (More about the War Birds.) By E. W. SPRINGS ... 4/- Post Free

"Aerobatics," By MAJOR OLIVER STEWART, M.C. ... 5/4 Post Free

"The Art of Flying," By CAPTAIN NORMAN MACMILLAN ... 5/6 Post Free

"Night Raiders of the Air," By A. R. KINGSFORD ... 8/- Post Free

"Knight of Germany (Oswald Boelcke)," By JOHANNES WERNER ... 9/- Post Free

"German War-birds," By VIGILANT ... 9/- Post Free

"Into the Blue," By CAPT. NORMAN MACMILLAN, M.C., A.F.C. ... 9/- Post Free

"Flying Dutchman," By ANTHONY FOKKER ... 13/- Post Free

"Schneider Trophy," By WING-COMMANDER A. H. ORLEBAR, A.F.C. ... 13/3 Post Free

The above obtainable upon application to:

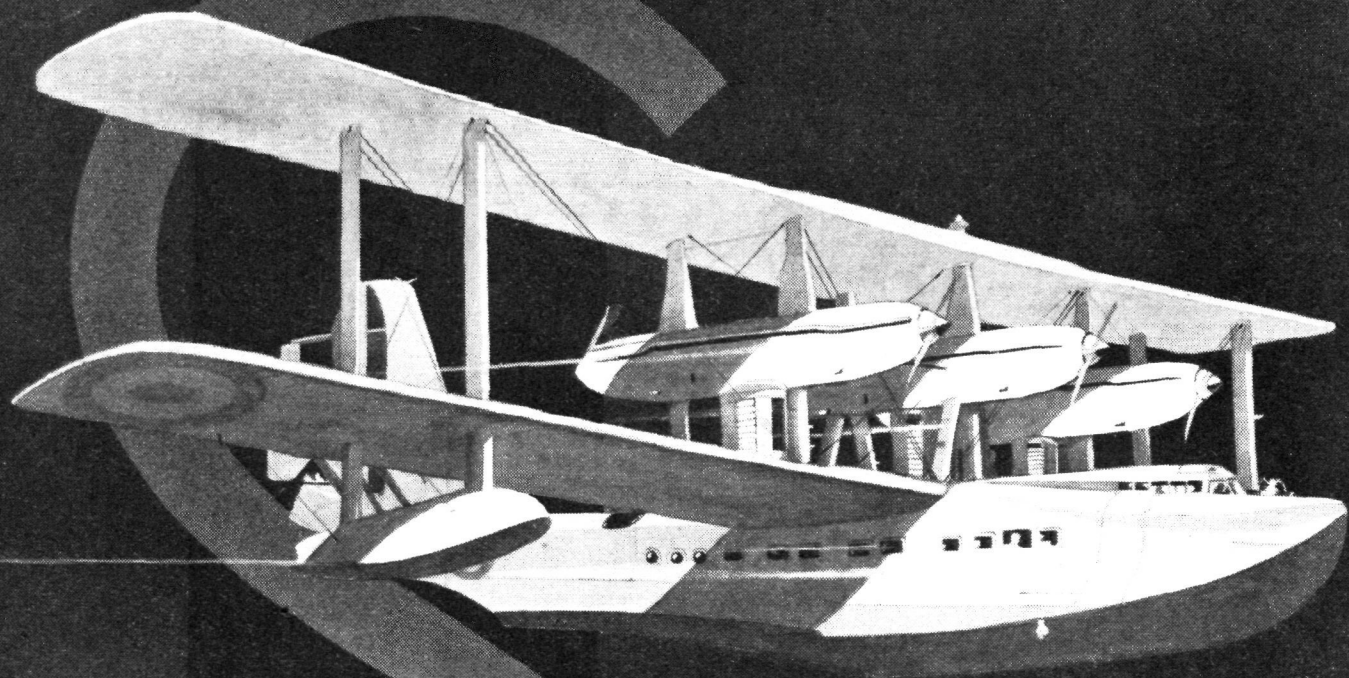
"FLIGHT" Office, 36, Great Queen Street, Kingsway, W.C.2.

FLY A POBJOY POWERED MACHINE

Write for illustrated folder to:
Pobjoy Airmotors Ltd., Hooton, Cheshire.



Save time by using the Air Mail.



AS SOUND IN DESIGN AS ROCHESTER
CASTLE!

The 32 TON SHORT R6/28 (SIX ROLLS-ROYCE BUZZARDS).

SHORT BROS.
R O C H E S T E R

Kindly mention "Flight" when corresponding with advertisers.

**THE HOME OF THE
WORLD'S FINEST**

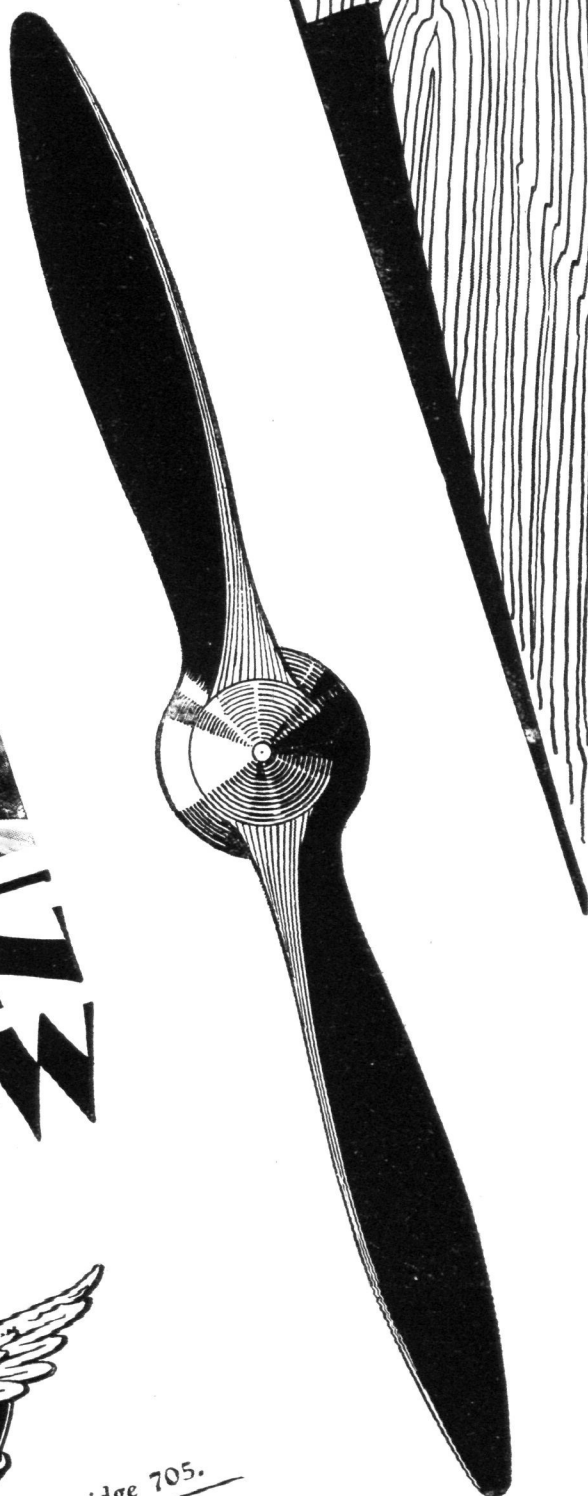


**WOODEN
AIRSCREW**
DESIGNED AND

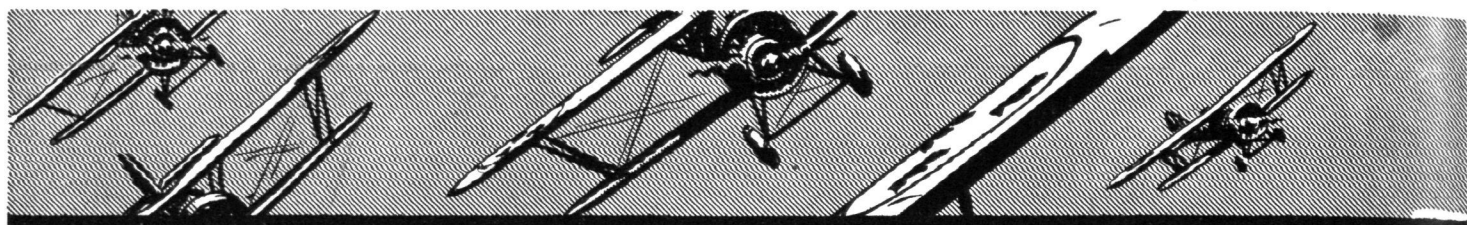


Telephone :

Weybridge 705.

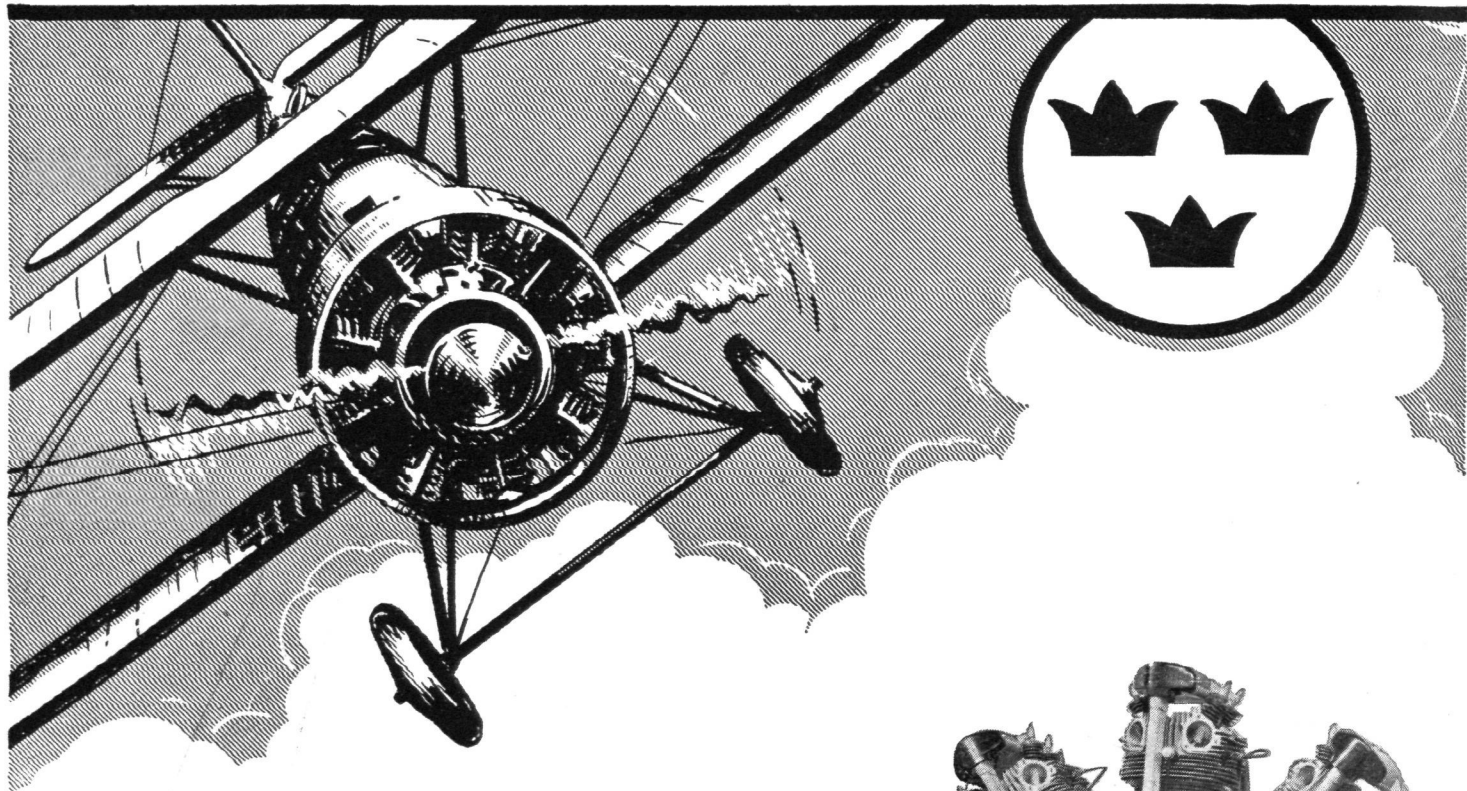


Save time by using the Air Mail.



PEGASUS

FOR SWEDISH ROYAL AIR FORCE

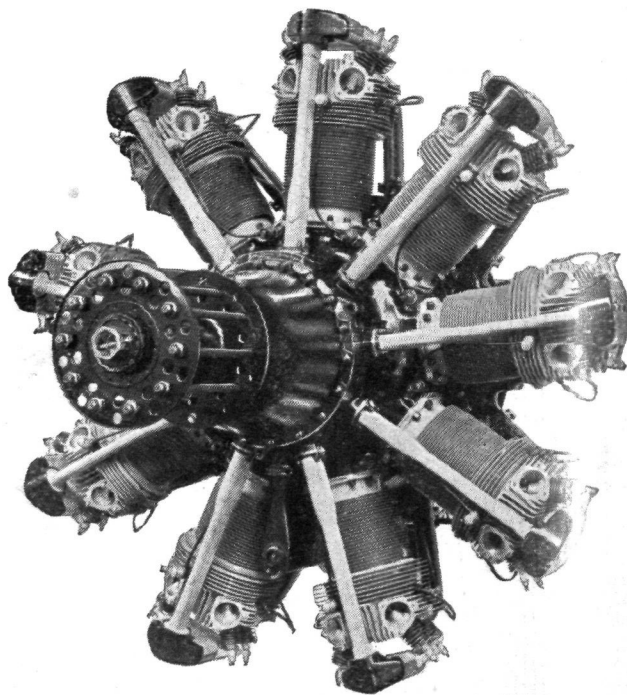


Pegasus engines are being fitted by the Royal Swedish Air Force in Hawker "Osprey" machines for fighting and reconnaissance with the Swedish aircraft cruiser "Gotland" and in Hawker "Hart" machines for service with the military branch.

Bristol

RADIAL AIR-COOLED ENGINES

FOR FULL INFORMATION REGARDING
THE LATEST "BRISTOL" ENGINES, WRITE
TO THE DESIGNERS AND MANUFACTURERS:



THE BRISTOL AEROPLANE COMPANY, LIMITED
Telegrams: **"AVIATION BRISTOL."** **FILTON . . . BRISTOL** Telephone: **45051 BRISTOL**

Printed for the Proprietors and Publishers, THE ST. MARTIN'S PUBLISHING CO., LTD., 36, Great Queen Street, Kingsway, W.C.2. by HARRISON & SONS, LTD., 44-47, St. Martin's Lane, London, W.C.2. Agents for the Colonies: GORDON & GOTCH, LTD., London, Melbourne, Sydney, Brisbane, Perth, Launceston (Tas.), Wellington (N.Z.), Dunedin (N.Z.). Canada—45, Richmond Street East, Toronto. South Africa—CENTRAL NEWS AGENCY, LTD. Entered at the New York Post Office as second-class matter.